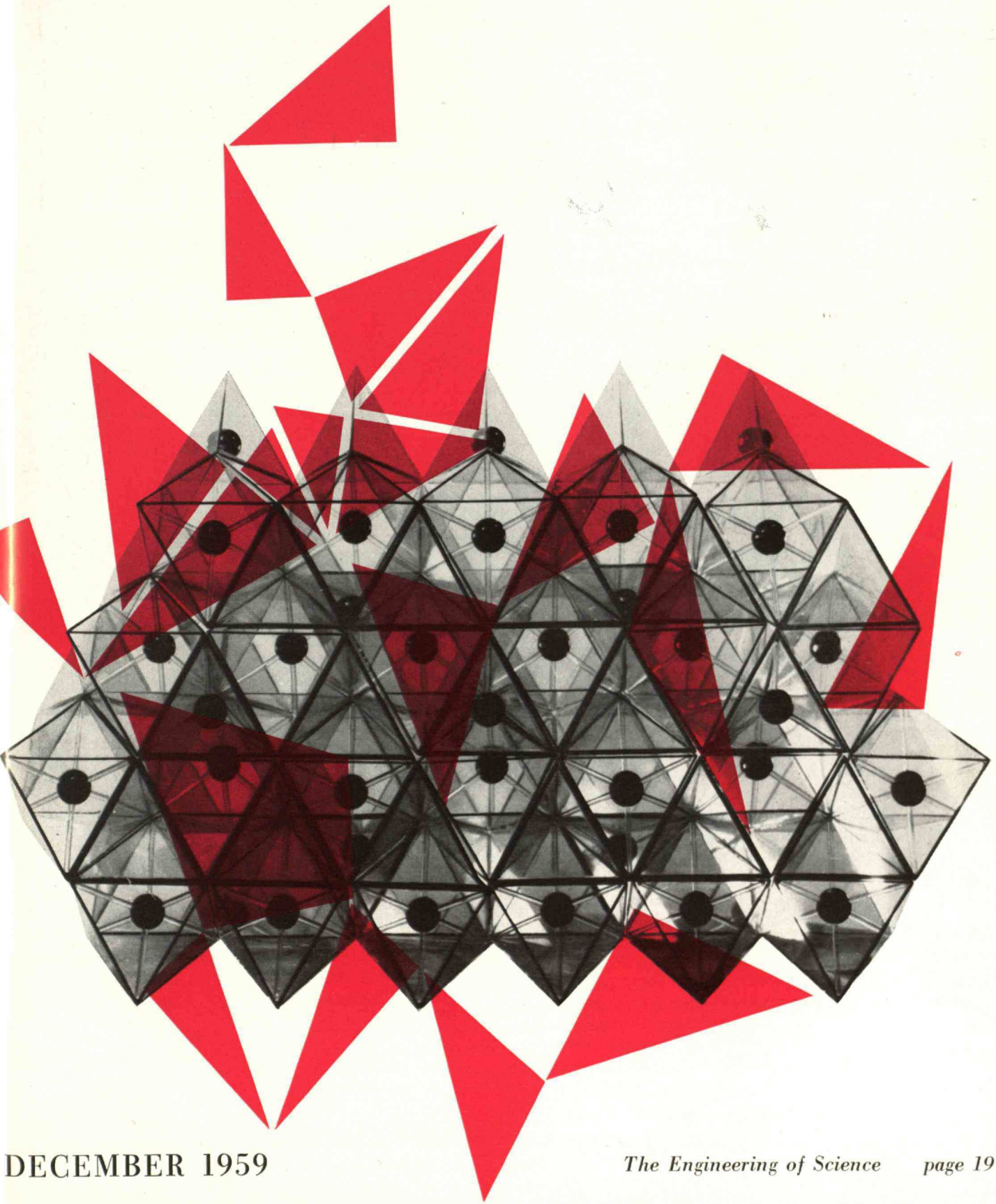
Technology Review



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"CREATIVE ENGINEERING" BRINGS BIG ECONOMIES TO WIDE-SCALE HEATING

Nation's largest High Temperature Water installation heats U.S. Air Force Academy

The year 1959 marks a milestone in the history of The United States Air Force—the year in which members of the first graduating class at the U. S. Air Force Academy earned their commissions.

Situated in the Rampart Range of the Rockies north of Colorado Springs, on a 28-square-mile site, the new academy incorporates many notable advances in design and engineering. For example, the heating system which services the widely-spaced buildings utilizes *high temperature water*. This system, compared to steam, frequently offers important advantages for large-scale heating. Since hot water has an inherently higher capacity to contain heat, it not only reduces initial equipment costs, but also makes possible operating and maintenance savings of from 10% to 20%. Smaller-sized pipes can also be used, steam traps and pressure valves are eliminated, and the boiler plant can be smaller—more compact than required by steam—with greater operating control and efficiency.

The installation at the Air Force Academy*, comprised of five C-E La Mont Controlled Circulation Hot Water Boilers, is the largest heating system of its kind in the nation, and is one of many such installations at large military bases, industrial plants and institutions.

Here then is another example of **C**reative **E**ngineering—the C-E approach to providing the most advanced designs of boilers for all fuel, heat and power requirements—from those of small plants to the largest power stations.

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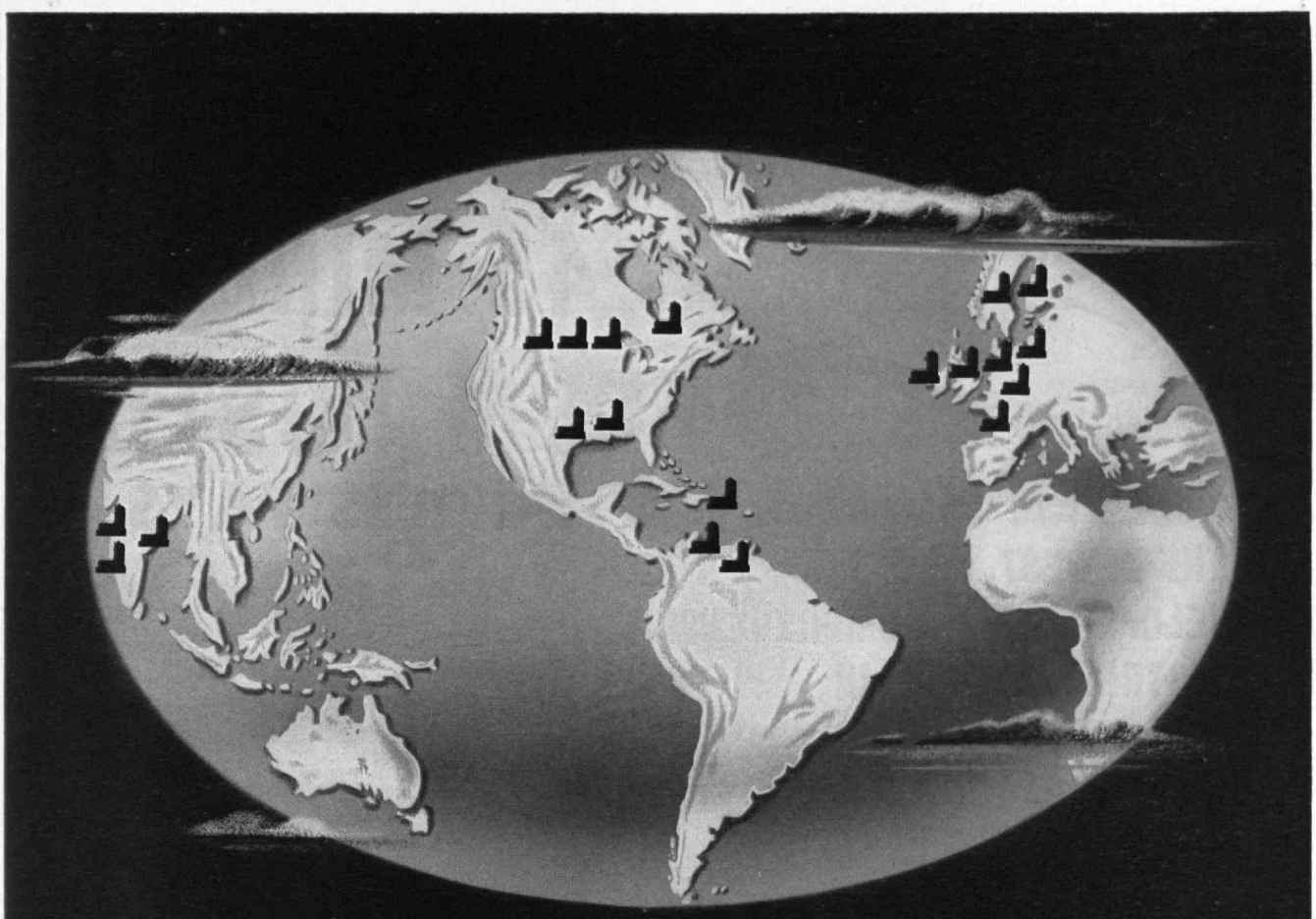

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World-wide Lummus Organization also completed hundreds of other units in same period . . . From Cardon, Venezuela, to Bombay, India—from Corpus Christi, Texas, to Turku, Finland—this string of modern "grass-roots" refineries testifies to the engineering skill of the Lummus staff. That staff includes over 3,000 permanent employees, located in seven branch offices and subsidiaries throughout the world.

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4. Refinery for Societe Generale des Huiles de Petrole at Dunkirk, France
5. "Portable" refinery for U. S. Navy Department
6. Lube oil refinery for Cit-Con Oil Corporation at Lake Charles, Louisiana
7. Refinery for International Refineries Inc. at Wrenshall, Minnesota
8. Refinery for Vacuum Oil Company Ltd. at Coryton, England
9. Refinery for Burmah-Shell Oil Company at Bombay, India
10. Refinery for Standard-Vacuum Oil Company at Bombay, India
11. Refinery for Standard Oil Company (Indiana) at Mandan, North Dakota
12. Refinery for Suntide Refining Company at Corpus Christi, Texas
13. Refinery for Commonwealth Refining Company at Ponce, Puerto Rico
14. Refinery for Esso Standard Oil Company at Antwerp, Belgium
15. Refinery for Caltex at Visakhapatnam, India
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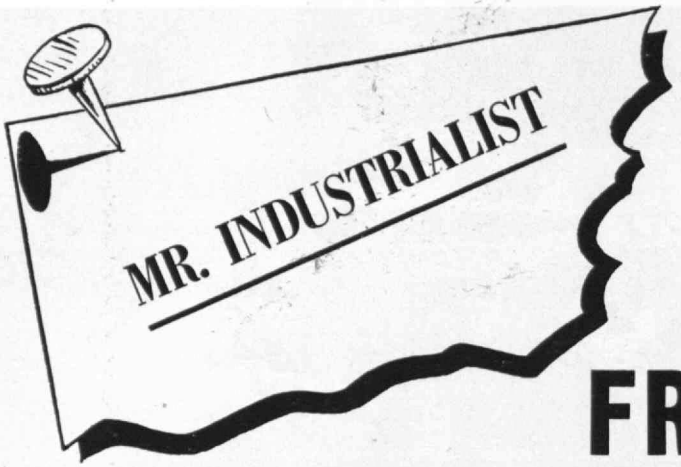

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- FREE WATER from wells driven in the Industrial Center. Extensive tests by the R. E. Chapman Company proves the existence of a tremendous underground water resource. A 24"x12" gravel pack well will produce over 750 gallons per minute—and it is only 53' deep. Plastics and electronic firms take note!
- CENTRAL SERVICES are planned to include a cafeteria, a data processing facility and warehousing—all within the Industrial Center.
- LABOR will be trained to your requirements in an established large vocational school—at no cost to you.
- TRANSPORTATION by air, rail, water and expressways is here. The airport is 5 minutes from the Center, all weather with scheduled flights, and deepwater port facilities 15 minutes. A private plane is waiting to fly you here for a firsthand look.
- TWO COMPANIES searched Maine, New Hampshire, Vermont, Rhode Island and Massachusetts for plant sites and finally settled in the New Bedford Industrial Center. Their requirements differed greatly but those of each were fulfilled. They are the J. C. Mendes Corp., an electrical machinery manufacturer and the Trimount Plastics Co., Inc., a plastic laminator.

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Technology Review

Reg. U.S. Pat. Off.

Volume 62, Number 2 *Edited at the Massachusetts Institute of Technology* *December, 1959*

Feedback

Names in Class Notes

FROM RICHARD W. WILLARD, '51:

Provided costs are not prohibitive, I propose the format of the Class Notes be changed so that all names of Alumni appear in boldface. When I prepare a set of Class Notes under the present system, I find myself trying to begin sentences making reference to an alumnus with his name. Were boldface type used for names I would not feel I must have this concern.

As a reader of notes for classes other than mine, I am sure readers would prefer the boldface. I know only part of the Alumni in other classes (and in my own, too), so I am mainly interested as a reader in finding references to those whom I know.

Boldface names would make is obvious that Class Notes are short notes about people. The present format implies that the notes are essays. I am one writer of Class Notes who believes in the former, and who shudders if my notes are considered the latter.

M.I.T., Cambridge, Mass.

(The costs would be higher, but not prohibitive. Some class secretaries have objected to the proposal—ED.)

A Roof for the Rink

FROM SIDNEY ALTMAN, '60:

With the recent completion of the Du Pont Athletic Center, I, speaking in behalf of the present varsity hockey team, wish to bring to the eye of the M.I.T. community and Alumni another project for which there is sore need. That is, construction of a roof over, or enclosure about, the present ice-skating surface.

During the last few years, the ability of the M.I.T. hockey teams to field competent squads has steadily declined because of poor practice facilities in contrast with improving facilities at other schools. Our practice time is cut by snowfalls and the often adverse weather in Boston. But this is not our only reason for wanting action regarding the rink. Throughout the community there are people who express a desire to see hockey games, but are deterred by the thought of standing in the cold for two or three hours. At other schools we visit, the hockey arena is a central meeting place on the campus when games are scheduled. At our school, a group of 30 people is considered a good turnout.

M.I.T., Cambridge, Mass.

ELTING E. MORISON, Professor of History at M.I.T. since 1946, prepared a memorable paper for a Sloan Fellows' convocation, a part of which became the article on page 31 this month.

EDITOR: Volta Torrey; BUSINESS MANAGER: R. T. Jope; CIRCULATION MANAGER: D. P. Severance; EDITORIAL ASSOCIATES: J. J. Rowlands, Francis E. Wylie, John I. Mattill; EDITORIAL STAFF: Ruth King, Diana de Filippi; BUSINESS STAFF: Madeline R. McCormick, Louise E. Ryan; PUBLISHER: H. E. Lobdell.

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This Month — *The Cover*

The photograph that was the basis of this month's cover shows some of the interstitial crystal models invented by Prof. A. L. Loeb and I. L. Morris of the Computer Components and Systems Group which are now used as a teaching aid in the Department of Electrical Engineering. With four different modules (octahedra filled, octahedra empty, tetrahedra filled, and tetrahedra empty), three-dimensional models of lattices found in a wide variety of crystals can be assembled.

Individuals Noteworthy

Aeronautics' Visitor

THE visiting Jerome Clarke Hunsaker Professor of Aeronautical Engineering at M.I.T. this year is Brigadier General Benjamin S. Kelsey, '28, who retired from active duty in the U. S. Air Force in 1955 and has since been a consultant to industrial organizations. He will give the Minta Martin lecture on aviation next March.

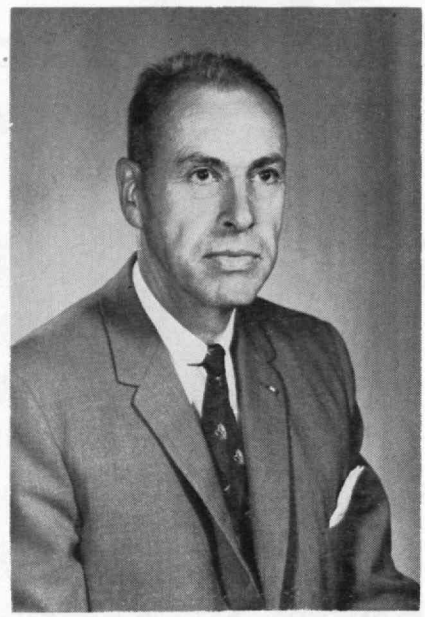
General Kelsey became a test pilot for the U. S. Army Air Corps in 1929, and was attached to the Guggenheim Fog Flying Laboratory where work was done on instrument landing. He was in charge of fighter procurement and production projects at Wright Field from 1934 to 1943, and took part in the first trans-Atlantic ferry flights of the P-38's and 22 combat missions for the Eighth Air Force. Later, he was on the faculty of the National War College and Deputy Director for Research and Development at USAF headquarters in Washington.

He holds the Distinguished Service Medal, Distinguished Flying Cross, Legion of Merit and Air Medal, and the Institute of the Aeronautical Science's 1945 Octave Chanute Award.

Naval Commander

CAPTAIN George L. Street, 3d, of the U.S. Navy became Professor of Naval Science at M.I.T. this fall and took command of the Naval R.O.T.C. Unit and the Naval Administrative Unit. Captain Street participated in the recent Lebanese crisis as commander of the Attack Transport *U.S.S. Fremont* (APA 44). Under his command in World War II, the submarine *U.S.S. Tirante* penetrated Japanese harbors while surfaced and sank a number of enemy craft. He holds the Congressional Medal of Honor, the Presidential Unit Citation, the Navy Cross, the Silver Star, a Gold Star and the Submarine Combat Insignia.

He was graduated from the U.S. Naval Academy in 1937, served on the faculty of the Armed Forces Staff College from 1948 to 1951, and was graduated from the National War College in 1956 after a year's study of international affairs.



Benjamin S. Kelsey

Honors to Alumni

RECENT recipients of medals and other honors have included:

Henry C. Harrison, '13, the Elliott Cresson Medal, from The Franklin Institute . . . *Augustus B. Kinzel, '21,* the Industrial Research Institute Medal for 1960 . . . *Walter Edward Campbell, '26,* the grade of fellow in the American Institute of Architects . . . *Charles Kingsley, Jr., '27,* the grade of fellow in the American Institute of Electrical Engineers;

Gordon S. Brown, '31, the electrical engineering education medal of the American Institute of Electrical Engineers . . . *Brig. Gen. John L. Person, '32,* the Distinguished Service Medal awarded by President Eisenhower . . . *Morris Cohen, '33,* the Francis J. Clamer Medal, from The Franklin Institute . . . *Capt. Loren E. Brunner, '41,* the Legion of Merit by the U. S. Treasury Department;

Randall D. Esten, '45, a second Sustained Superior Performance Award by the U. S. Army Engineer Research and Development Laboratories . . . *Harold G. Ingraham, Jr., '49,* the grade of fellow by the Society of Actuaries . . . *Edward R. Hermann, '49,* the Eddy award of the Federation of Sewage and Industrial Wastes Association . . . *Milton Stern, '50,* the 1958 prize to young authors by the Electrochemical Society . . . *John Dahlen, '52,* the Air Force Commendation Medal . . . *John Musho, '59,* the 1959 Rome Prize for a student of architecture.

Liaison Officers

JOHN F. MAXWELL, JR., '52, and Gary L. Benton, '59, have been appointed Industrial Liaison Officers at M.I.T. Mr. Maxwell, a graduate of the Amos Tuck School of Business Administration at Dartmouth, previously worked with the Northwest Paper Company, the Safe Harbor Water Power Corporation, and the Convair Division of General Dynamics. Mr. Benton, a Carnegie Institute of Technology graduate, held a Whitney Fellowship in the Graduate School at M.I.T. and was a Research Assistant in the Industrial Dynamics Group of the School of Industrial Management.

They succeed Robert D. Haberstroh, '51, who has joined the faculty of Colorado State University, and Merrill J. Baumann, '52, who is now with Merrill, Lynch, Fenner and Smith.

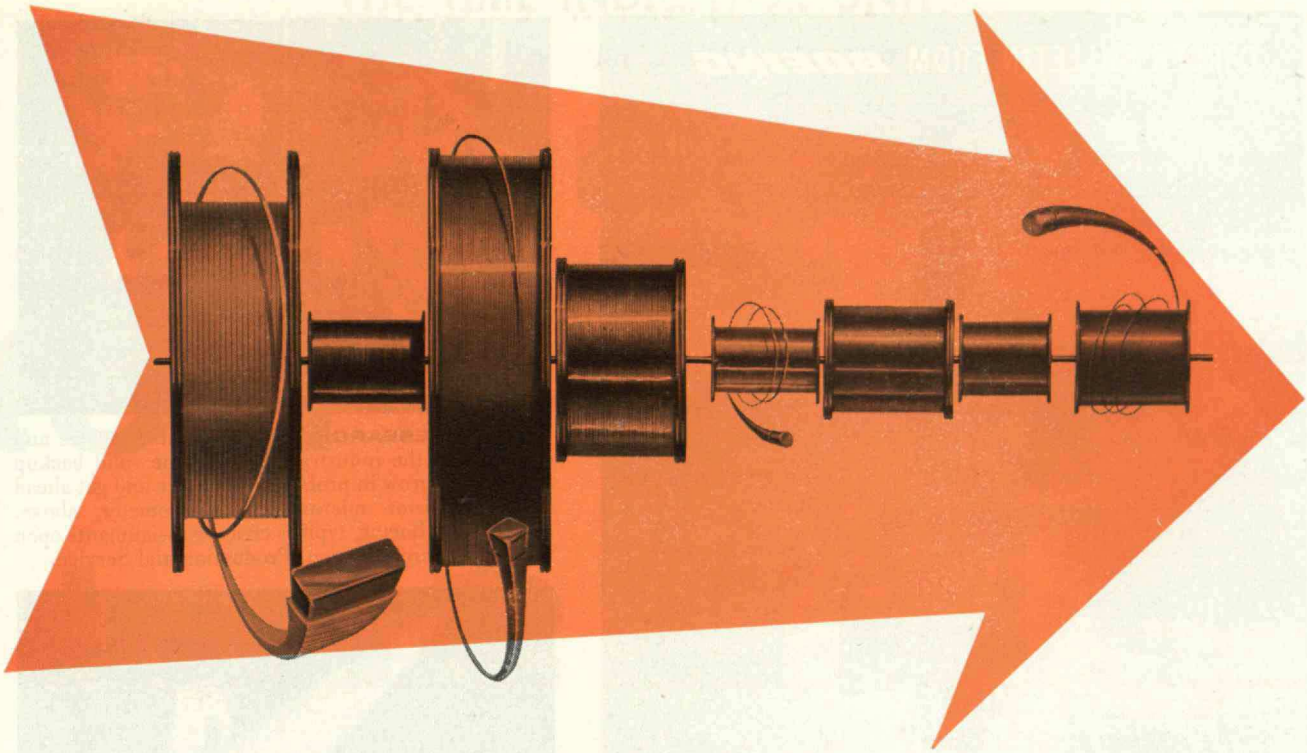
Personnel Relations Director

ROBERT J. DAVIS, who has been responsible for all M.I.T. union relations since 1957, became director of the Office of Personnel Relations in August. Mr. Davis came to M.I.T. from the Atomic Energy Commission in 1956 to be director of union relations at Lincoln Laboratory.

Previously he had been personnel director for the Los Alamos Scientific Laboratory, associated with the Columbia Steel Company, the Kaiser Steel Company, and the American Potash and Chemical Corporation, and in the U.S. Navy. He was graduated in 1937 from the Virginia Polytechnic Institute.

In his new post, he succeeds Malcolm G. Kispert, '44, Administrative Vice Chancellor, to whom he will report.

(Continued on page 8)



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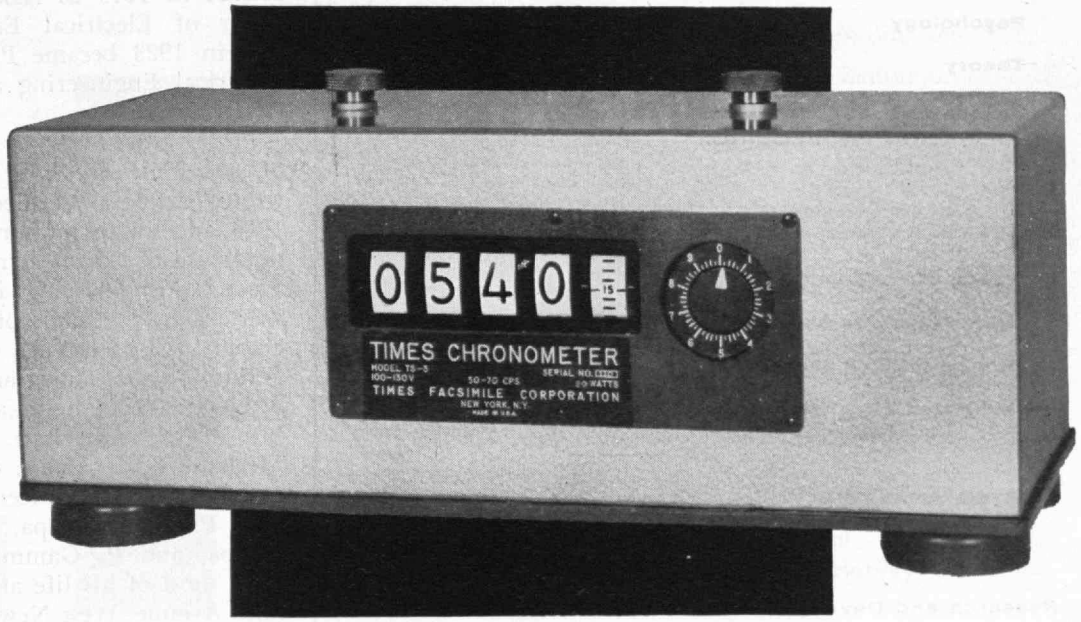

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Individuals Noteworthy

(Continued from page 4)

W. H. Timbie: 1877–1959

PROFESSOR EMERITUS William Henry Timbie died on October 30 in Brattleboro, Vt. He was largely responsible for establishing the Electrical Engineering Cooperative Course (VI-A) at M.I.T., and headed it for 28 years prior to his retirement in 1947.

Professor Timbie was born in Pittsfield, Mass., and graduated from Williams College. He taught electrical engineering for nine years at the Pratt Institute in Brooklyn, N. Y., and for seven years at the Wentworth Institute in Boston, where he was head of the Department of Applied Science. During World War I, he was editor-in-chief of the Committee on Education and Special Training in the War Department. He came to M.I.T. in 1919 as Associate Professor of Electrical Engineering, and in 1923 became Professor of Electrical Engineering and Industrial Practice.

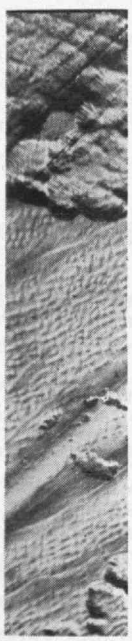
Professor Timbie was the author or co-author of eight books; he wrote "Elements of Electricity" in 1910, and was co-author with Vannevar Bush, '16, of "Principles of Electrical Engineering" in 1922. He was a past president of the Association of Cooperative Colleges, a Fellow of the American Institute of Electrical Engineers, and a member of the American Society of Mechanical Engineers, the American Society for Engineering Education, Phi Beta Kappa, Kappa Eta Kappa, and Pi Gamma Mu. He lived most of his life at 295 Highland Avenue, West Newton.

Professor Timbie is survived by his wife, Florence Hill Timbie; three sons, Charles, of Framingham, Robert, of Pensacola, Fla., and Theodore, of Marblehead; and two daughters, Mrs. Florence Steinkamp of Marshfield, Wis., and Mrs. Francis Vachon of Portland, Maine.

Recording Secretary

TO ACCOUNT properly for the variety of gifts and bequests that M.I.T. receives through many different offices, Frederick W. Watriss, '41, has been appointed Recording Secretary. He is Assistant Treasurer.

(Continued on page 10)



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H. ULIN • S.B. '37—ScD. '49
G. VILLA • S.B. '35—S.M. '39

Individuals Noteworthy

(Continued from page 8)

In the News . . .

HIS IMPERIAL HIGHNESS *Merid Asmatch Asfa Wossen,* Crown Prince of Ethiopia and son of Haile Selassie, toured M.I.T. this fall. He is a direct descendant of King Solomon and the Queen of Sheba. Princess Medseriash War Abebe accompanied him. . . . *Roger Babson, '98,* who predicted the 1929 Wall Street crash, told the press this fall that he sees some similarities between the situation then and now, but doesn't expect another crash. He said he was advising clients to have $7 in cash or bonds for every $3 in stocks, because he expected an erosion in stock prices but the market might rise and the $3 was a hedge. . . . *Mrs. Karl Taylor Compton* saw the cornerstone laid at Israel Institute of Technology for a building bearing her late husband's name. . . . *John Scali, '40,* Associate Professor of Civil Engineering at Case Institute of Technology, heads a research team studying the loads on people's feet, to aid orthopedic surgeons. . . . *Bruce Shore,* a graduate student, has organized a water polo team at M.I.T.

(Continued on page 36)

. . . a hand in things to come

Moving mountains across the world

Following rugged paths through lonely African bush country . . . dredging a river bed to carry heavily-laden barges out of the steaming jungles of British Guiana . . . crossing 6,000 miles of ocean to reach a remote island in the South Pacific. This is all part of the job faced by the geologists and mining engineers of Union Carbide as they seek out the ores of chromium, manganese, columbium and other essential alloying metals.

These are the metals that make today's many special steels what they are—sinewy, for the cables of a great suspension bridge . . . sturdy, to support the tallest skyscraper . . . glistening with beauty in stainless steel tableware . . . and suitable for the hundreds of complex parts that make up your automobile. And now the demands of the space age make alloying metals more vital than ever.

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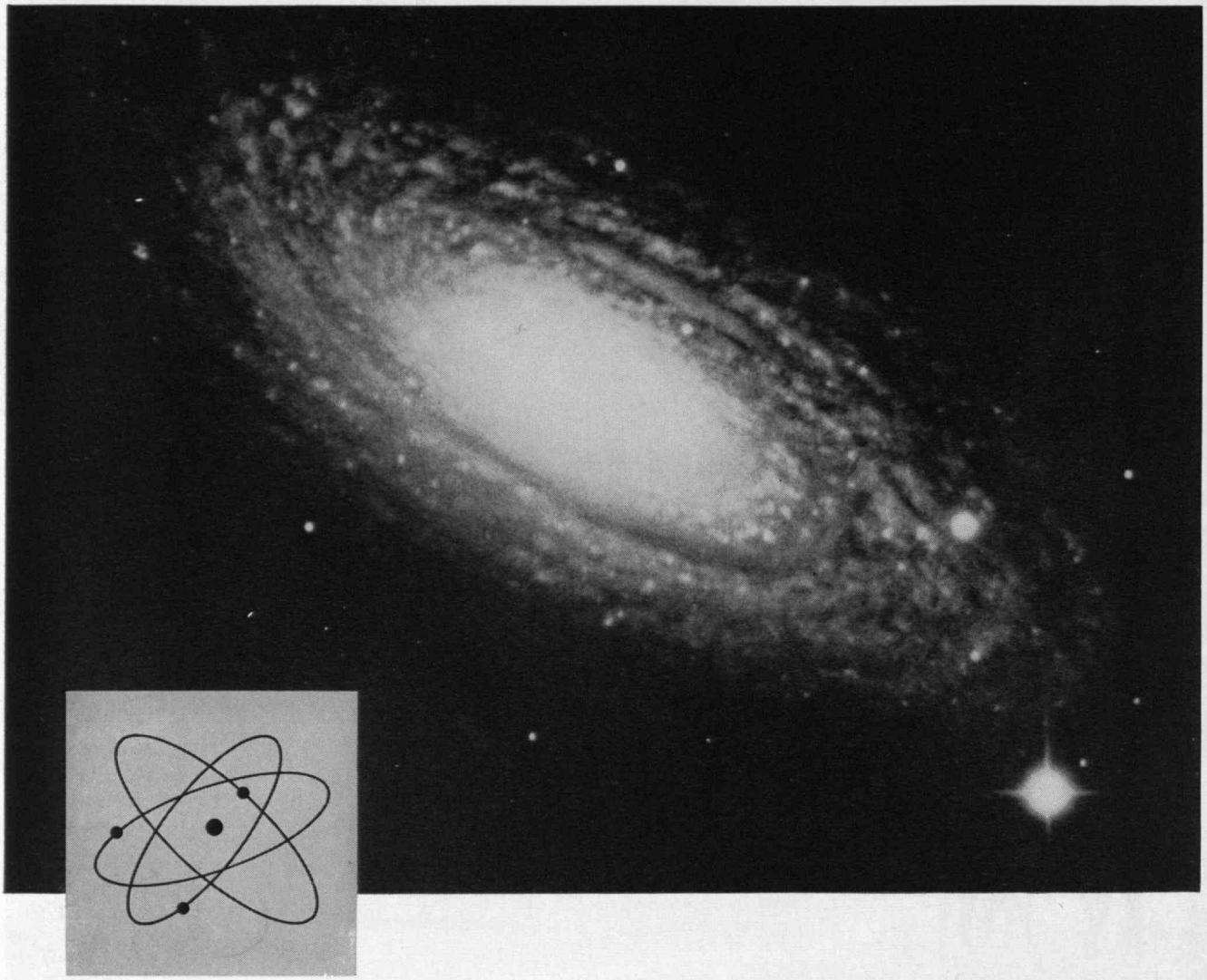

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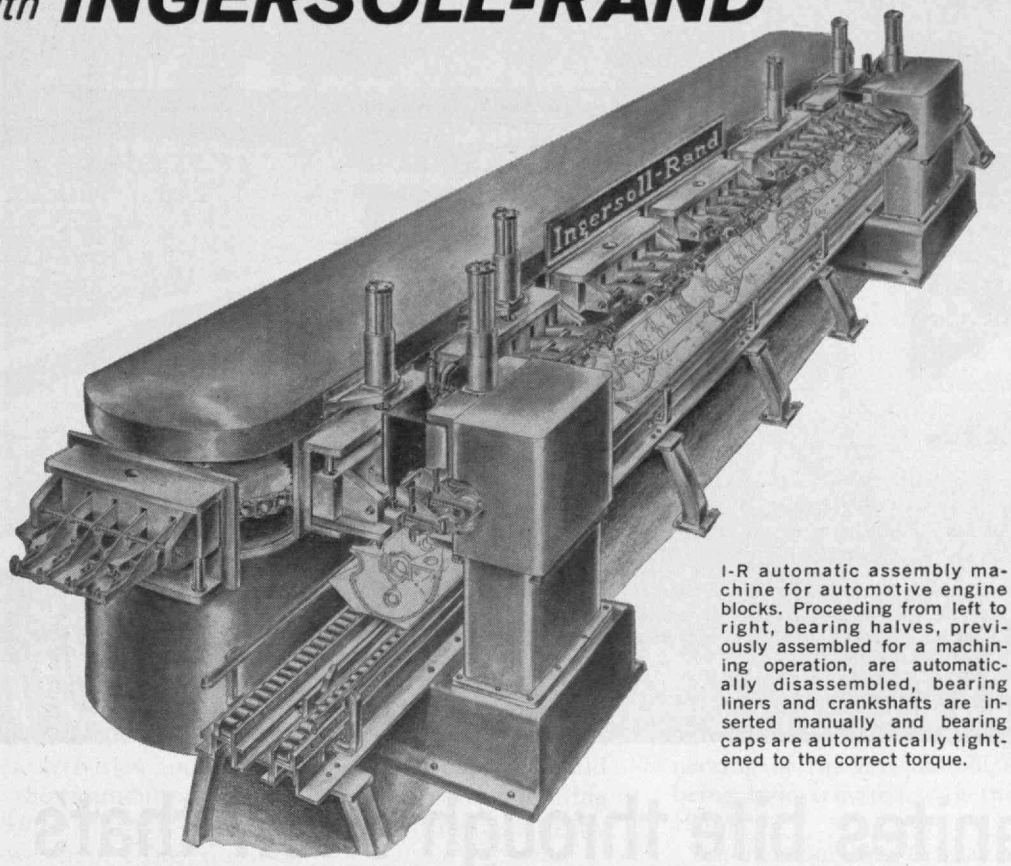

I-R automatic assembly machine for automotive engine blocks. Proceeding from left to right, bearing halves, previously assembled for a machining operation, are automatically disassembled, bearing liners and crankshafts are inserted manually and bearing caps are automatically tightened to the correct torque.

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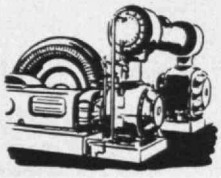
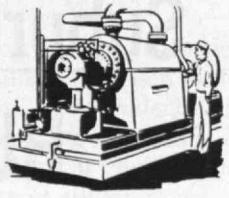


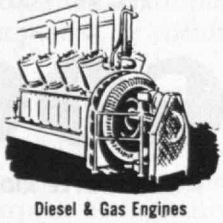
Compressors and Blowers



Centrifugal Pumps

Rock Drills

Steam Condensers



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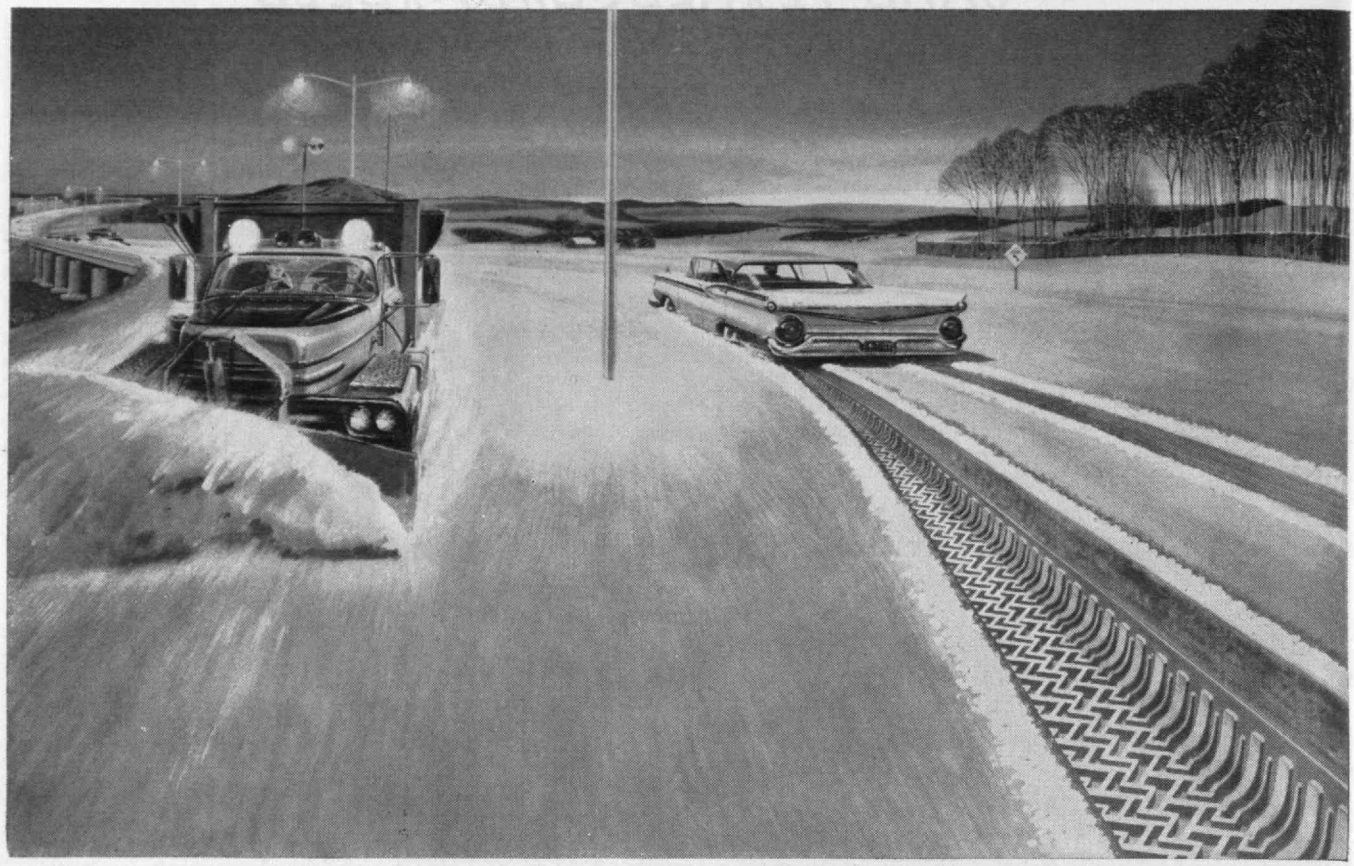

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• **New! Exclusive Goodyear tread grip**—for 51% more traction in snow, 17% more traction in mud!

• **New! Exclusive Goodyear tread rubber and 3-T cord** (Rayon or Nylon)—for an extra season of wear for many motorists!

• **New! Exclusive Goodyear silent ride design**—for a quiet ride even on the turnpikes!

SUBURBANITES by Goodyear have been tested way up in Canada's Hudson Bay area. And they've also proved their stuff where *you* drive—from driveway to superhighway.

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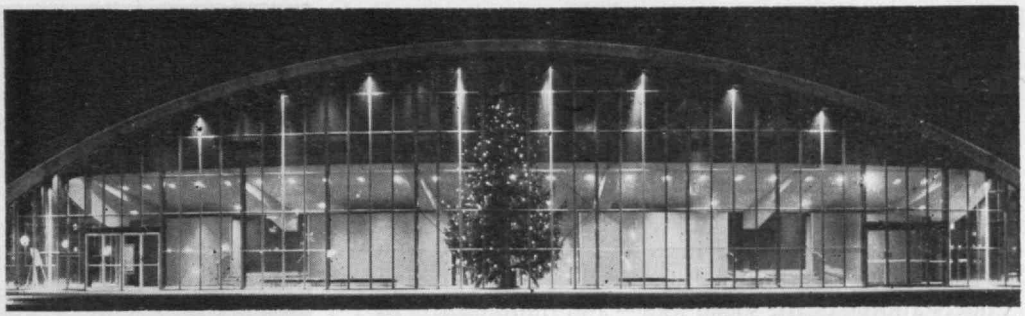
Trend Of Affairs



Funds for a Renaissance In Engineering Education

TEN YEARS AGO, when the Ford Foundation began surveying ways in which its funds might be used most effectively, the great social problems seemed to cry for priority over science and engineering and no assistance was given to the latter. Four years ago, however, after the bearing of science and engineering on human welfare had become clearer to everyone, the foundation began to plan a program to support these activities, and this fall President Henry T. Heald of the foundation announced that grants totaling $19,050,000 were being made to 10 institutions to improve engineering education.

The largest of these grants, amounting to $9,275,000, was given to the Massachusetts Institute of Technology. It was the largest single gift that the foundation ever had made to a college or university. At the same time, the California Institute of Technology received $3,200,000; the Carnegie Institute of Technology, $2,250,000; the University of California at Los Angeles, $1,200,000; the University of Michigan, $1,175,000; Case Institute of Technology, $1,000,000; the University of Illinois, $275,000; Purdue University, $275,000; Stanford University, $200,000, and the University of Wisconsin, $200,000.

Mr. Heald listed these grants in an address at a meeting in Washington of the American Institute of Consulting Engineers. He said then, in part:

"In the last two decades, a revolution has been under way in the practice of engineering. Although it is more dramatic in electronics and aeronautical engineering than in civil engineering, the nature of the change is such that it affects everyone who professes to the calling of engineer.

"If the engineer is still concerned about his professional status, I can think of no surer way to allay such fears than by exceptional performance. Unusual opportunities for exceptional performance now exist through a thorough and deep understanding of science and mathematics, their frontiers, and how they may be applied to the needs of mankind.

"However, many of the important engineering achievements of recent years have been wrought by scientists applying their own discoveries. This does not mean that the engineer is about to become as obsolete as the trolley conductor, or that his numbers will decline as radically as the farmer's.

"Quite the contrary. Because engineering is more closely allied to scientific principles, because the span between discovery and application has been greatly compressed, and because the new technology is more complex and costlier, the unique talents and discipline of the engineer are more in demand than ever.

"Yet engineering education – the gateway to professional practice – has lagged behind the revolution in technology. In a hopeless race against time and reality, most engineering students in their late teens and early twenties are being equipped for the engineering of the last half of the twentieth century by being indoctrinated with the art and practice of the 1950's.

"It is a paradox that as engineering opportunities have expanded greatly, enrollments have risen only slightly and, in several postwar years, actually declined. I suggest that the inertia of engineering education is one of the major factors in the failure of engineering to attract vastly increased numbers of students.

"Unless this trend is reversed, the technological future of the United States is in grave peril."

Mr. Heald went on to speak of the weakness of engineering education "in quality as well as in a sheer deficiency of numbers," and to explain that the foundation's grants were intended to support imaginative programs now under way in some schools, to expand the influence of these ventures, and to encourage new attempts to renovate the preparation of engineers.

Since "the most ingenious designs for education are hollow without comparably broad and imaginative faculties," he said, emphasis has been placed in the grants on strengthening present faculties and recruiting additional engineering teachers. But the grants also include provisions to accelerate curriculum modernization and new educational experiments. "These include," he said, "a curriculum focused on science-based core courses that cut across traditional departmental lines, emphasis on the concept of design as a discipline basic to engineering education, and the widespread use of high-speed computers to enrich classroom instruction."

Mr. Heald concluded his remarks by reminding his audience of consulting engineers:

"Even if this program should exceed our expectations, no single foundation can hope to constitute the sustaining force in so vital an enterprise as engineer-

ing education. The responsibility for long-term enrichment of engineering education rests on the engineering schools, on the engineering profession, on parents, and all of society.

"You gentlemen can make notable contributions to a renaissance of engineering education, for you function wide of professional ruts, you are influential alumni of engineering colleges, and not only have you achieved distinction in your specialties but you have also dealt with broad public issues and have an understanding of the social uses – and limitations – of engineering.

"Engineering education needs your support and the benefit of your experience. It may even need you as teachers. But perhaps the most important role you can play is to carry your professional life to higher levels, to apply the new technology, with its treasure of science and mathematics, to present engineering problems, the seemingly prosaic as well as the exotic, no matter how embedded in tradition their solutions are.

"The challenges and the opportunities are limitless. As you grasp them, the engineering profession will be honored in society not for past accomplishments but for extraordinary contributions to the present and time to come."

Details of the grant to M.I.T., and the aspirations of the Institute's School of Engineering, are explained by Dean Gordon S. Brown, '31, in the article entitled "The Engineering of Science" on page 19.

Seven other universities received grants to strengthen their faculties, and four, in addition to M.I.T., received grants intended either to accelerate curriculum modernization plans now under way or to undertake new educational experiments. The University of California at Los Angeles, for example, will concentrate on the concept of design as a discipline basic to engineering education, and the University of Michigan will experiment with the use of computers to enrich classroom instruction.

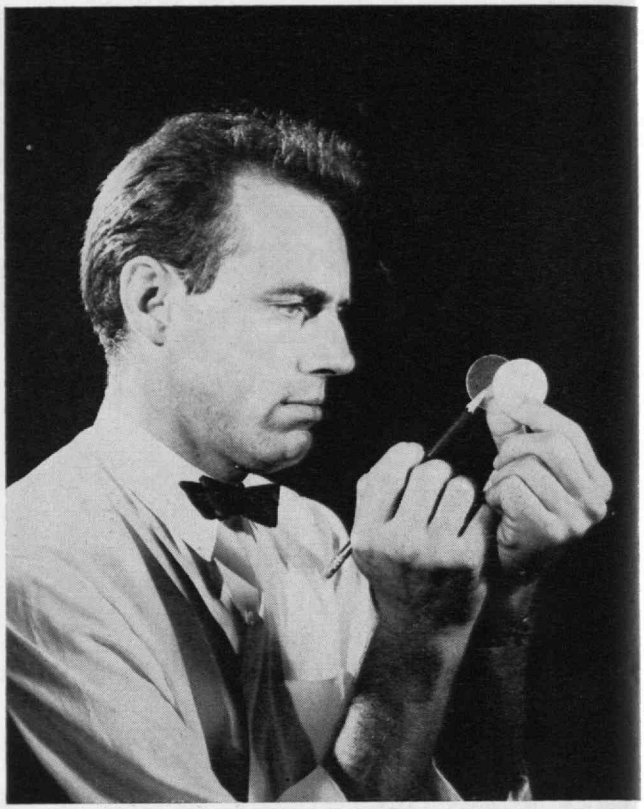
President Stratton's Statement

THE INSTITUTE'S gratitude for the $9,275,000 grant from the Ford Foundation was expressed by President Julius A. Stratton, '23, in these words:

"We are deeply grateful to the Ford Foundation for this truly magnificent grant, which will enable M.I.T. to take one of several highly important steps we hope to make in the years just ahead through a major development program.

"The accelerating tempo of the world's technological change imposes great demands on engineers and it has become increasingly clear that the strengthening of engineering education is a major national goal. With the funds from the Ford Foundation, we can begin to meet these challenges with an imaginative and venturous spirit.

"I am confident that the advances planned for the School of Engineering at M.I.T. will be reflected importantly in the technology of the world in years to come. And since technological developments inevitably produce far-reaching changes in society itself, I am equally confident that the program we envision will make profound contributions to the common good."



A NEW CERAMIC that transmits light, withstands high temperatures, and can be pressed into any shape desired, was first made by Robert L. Coble, '55 (above), of the General Electric Research Laboratory. It is made from powdered aluminum oxide. Edward R. Stover, '50, was one of the men who contributed to its development, and J. Herbert Hollomon, '40, foresees many uses for it. This ceramic, Dr. Hollomon has pointed out, "illustrates our ability to create entirely new materials when we gain better understanding of fundamental scientific processes."

Uncle Dudley's Reaction

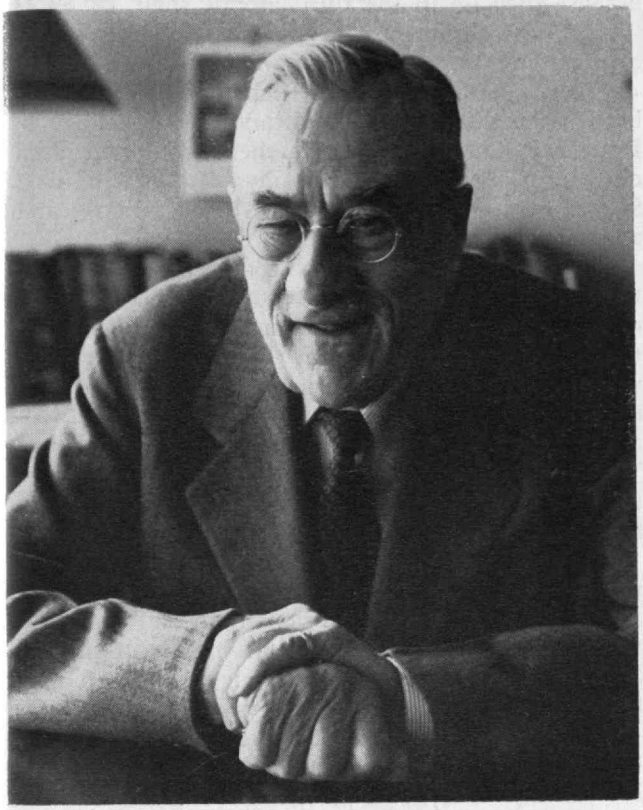
THE GRANT to M.I.T. by the Ford Foundation prompted the Boston *Globe's* "Uncle Dudley" to comment on "M.I.T.'s New Opportunity" in this vein:

"That the future will depend largely on the country's engineers is universally recognized. . . . The engineer has a way of winning public confidence. He is at once skilled and practical. His achievements are plain to see. In high public positions he is often useful and constructive. But in the face of unusual conditions he sometimes lacks sufficient boldness and imagination.

"An engineer officer, George B. McClellan, trained the Union Army of the American Civil War into an effective combat instrument. But he was fatally overcautious as a field commander.

"A 'great engineer' was the label accorded Herbert Hoover when he ran for office. He has made lasting contributions to American government and administration. But he was denied reelection as President because of the great depression. His critics among historians say that he made many of the right moves to meet that crisis, but failed to develop them boldly enough.

"That engineering education has always discounted imaginative thinking there is considerable reason to



FOR "WHO'S WHO," Warren K. Lewis, '05, described his career tersely: "With Mass. Inst. Tech., 1910–, prof. chem. engring., 1915–48." His achievements could fill columns. Students are still enjoying his anecdotes, and Professor Lewis is planning a book about social and economic implications of engineering. Robert C. Lyon of the M.I.T. Photo Service made this portrait of chemical engineering's father in his office this fall, shortly before Dr. and Mrs. Lewis left to celebrate their 50th wedding anniversary with four children and their families.

believe. Nearly three-quarters of a century ago two Massachusetts Institute of Technology undergraduates asked a professor friend whether they had a chance of succeeding in the electrical business. He replied that there might be room for one of them, but not for both. They went ahead anyway and founded one of the largest concerns in the country. . . .

"Institutions that teach engineering have begun to recognize the defects of their qualities. Several years ago M.I.T. established a compulsory course in the humanities. Perhaps in recognition of the spirit that impelled this move, the Ford Foundation has made the Institute the chief beneficiary of the first major grants in its new program in science and engineering. . . .

"That immense sums will be spent to modernize engineering education is heartening. To keep it looking forward has always been a problem and always will be. For that very reason, the Foundation would be wise to make future grants with the broadening of opportunity as at least one of its aims. . . .

"The Ford Motor Company, it is worth recalling, stems from a man who was trained on the job as a machinist. His friend, Thomas Edison, had little formal education. To assure American engineering the venturesome spirit that is essential, the way should be kept open for geniuses like these."

The Treasurer's Report

LAST YEAR'S changes in the Institute's financial affairs were summarized as follows in the report of Joseph J. Snyder, 2-44, Vice-president and Treasurer, to the Corporation this fall:

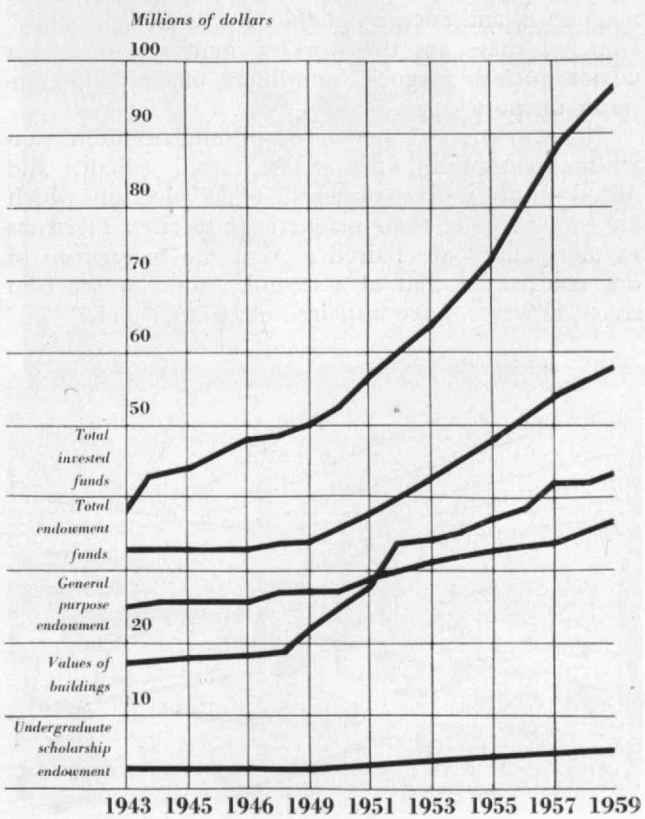
	1958-59	1957-58	Increase
Academic operations	$23,125,000	$20,905,000	$2,220,000
Sponsored Research	59,627,000	54,344,000	5,283,000
Total funds	99,142,000	91,773,000	7,369,000
Plant assets	44,179,000	43,251,000	928,000
Gifts and grants	10,006,000	7,732,000	2,274,000
Investments:			
Market value	155,777,000	132,150,000	23,627,000
Book value	97,865,000	89,267,000	8,598,000

Operations in 1958-59 and the previous year were compared in this table:

Revenues and funds	**1958-59**	**1957-58**
Tuition and other income	$7,667,000	$6,485,000
Investment income	1,722,000	1,913,000
Gifts and other receipts	5,344,000	4,481,000
Contract allowances for indirect expenses	6,543,000	6,211,000
Auxiliary activities	1,849,000	1,815,000
Total	$23,125,000	$20,905,000
Expenses		
Academic	9,816,000	8,718,000
General and administration	7,895,000	7,149,000
Plant operations	3,537,000	3,210,000
Auxiliary activities	1,877,000	1,828,000
Total	$23,125,000	$20,905,000

The rate of income earned in 1958-59 on the funds sharing in the general investments was 6.22 per cent on the average book value.

THE GROWTH OF M.I.T.'S FUNDS AND PLANT



Radioactive Waste Disposal

BY 1980, the nuclear power industry expects its installed capacity to total 175,000,000 kilowatts. The radioactivity of the waste products of such an industry, even after a year of storage, will be about 100,000,000,000 curies a year – and the maximum permissible concentration of mixed radioisotopes in water is only 1/10,000,000,000th of a curie per liter. The great seas which have received much of mankind's waste could not accept this many curies annually without being significantly affected. How is public health going to be safeguarded?

The problem is so grave that the International Atomic Energy Agency will devote large sums of money, for years to come, in many parts of the world, to research regarding radioactive waste disposal. To plan this great program, it turned to M.I.T., and summoned Prof. Rolf Eliassen, '32, of the Department of Civil and Sanitary Engineering, to its headquarters in Vienna for a month this fall. While overseas, Professor Eliassen also was scheduled to participate in an international conference at Monaco on disposal of radioactive waste, which was co-sponsored by the International Atomic Energy Agency and the United Nations Educational, Scientific and Cultural Organization.

Magnetic Calculations

SEVENTY-SIX complex and voluminous calculations, which would have taken hundreds of years by pencil and paper, have been processed through an M.I.T. computer to obtain a better understanding of a group of atoms that hold increasing interest in science and engineering. This mathematical spadework, left undone until now despite other advances in atomic research, represents a step forward in studies of the magnetism and energies of the "iron series elements." Some of these are the working materials in recent devices such as magnetic amplifiers, masers, and computer memory cores.

The iron series elements – scandium, titanium, vanadium, chromium, manganese, iron, cobalt, and nickel – have a group of so-called "3d" electrons which are the source of their magnetic properties. Electrons in most atoms are paired so that the magnetism of one counteracts that of a second. Atoms of the iron series, however, have unpaired electrons, labeled "3d" because they lie in the third atomic shell, or set of "orbits," of electrons. These unpaired electrons are of great interest to physicists who study solids.

The calculations, made by Richard E. Watson, were based on mathematics evolved about 30 years ago by Douglas R. Hartree, British mathematician and physicist: V. A. Fock, a Russian physicist; and John C. Slater, Institute Professor. Dr. Watson is a research associate in physics at M.I.T.

Dr. Watson's work could be compared very roughly to the task of calculating the attraction between each of 25 electrically charged magnets as they were continuously spun into the air by a juggler. As the whirling magnets changed position from moment to moment, the forces of attraction between any two – and among all of them – would constantly change. Taking a magnet away from the juggler or adding one to his collection would appreciably alter the environment of all.

One result of the M.I.T. work indicated that the removal or addition of an electron in an atom (ionization) had greater repercussions than had been anticipated. Although experimental physicists usually have ignored this effect, its size suggests that it must be included in any detailed analysis of atomic events.

The research was part of a broad investigation of third-shell electrons by the M.I.T. Solid State and Molecular Theory Group, through contract with the Office of Naval Research.

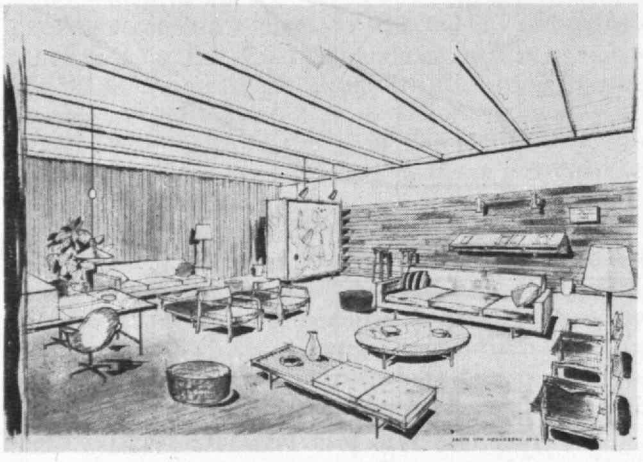
The Olive Barnard Memorial

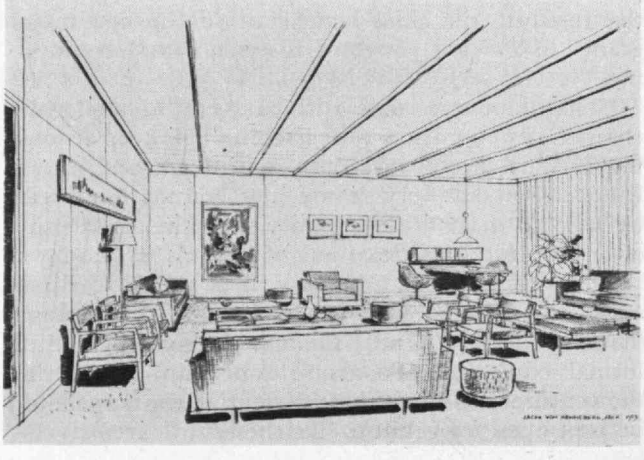
BY mid-winter, the Olive Barnard Memorial room pictured below is scheduled to be completed for the School of Industrial Management. It is on the first floor of the Sloan Building, in which there previously was no place for undergraduates to meet friends, wait between classes or gather informally. Contributions from Alumni who were Miss Barnard's friends are being used to prepare it.

The committee for the Olive Barnard Memorial has William L. Stewart, Jr., '23, and Hugh S. Ferguson, '23, as co-chairmen, and includes: Dwight C. Arnold, '27, Peter B. Baker, '50, Jonathan Y. Ballard, '23, Monroe R. Brown, '42, Philip L. Coleman, '27, Wesley H. Loomis, III, '33, Joel Y. Lund, '23, Schrade F. Radtke, '40, Leburton D. Webster, '33, and John J. Wilson, '29.

Roach and Craven of Boston are the decorators.

(The Trend of Affairs is continued on page 44)





The Engineering Of Science

BY GORDON S. BROWN

M.I.T. is challenged now to produce the instigators of change in the future . . . and must find ways to accelerate greatly advances in engineering education

An engineer who is resourceful in science, who can remold the foundations of his profession as science advances, and especially one who can couple forward-looking judgment and keen intuition with his exploitation of science, is a precious member of society. He is much more than a custodian of current technology. His role is as vital to industry as that of the playwright in the theater.

Such an engineer classifies the recorded observations of scientists in ways which enable his profession to use them to foresee the outcome of new ventures, to predict the characteristics of new designs, and to evaluate the potentialities of new techniques. He does this by seeing relationships between seemingly unrelated events and pulling them together in quantitative ways. He thus creates new and useful configurations or systems. He purposefully forces the technological advances essential to the utilization of the findings of scientists. Such engineers have shaped our civilization and will shape our future.

How are they to be produced? After many months of discussion and deliberation, the M.I.T. Committee on Engineering Education headed by Professor E. R. Gilliland, '33, submitted a report to the Faculty this fall, which stated that the objectives of the Engineering School's program should be to give the student:

1) A good general education.

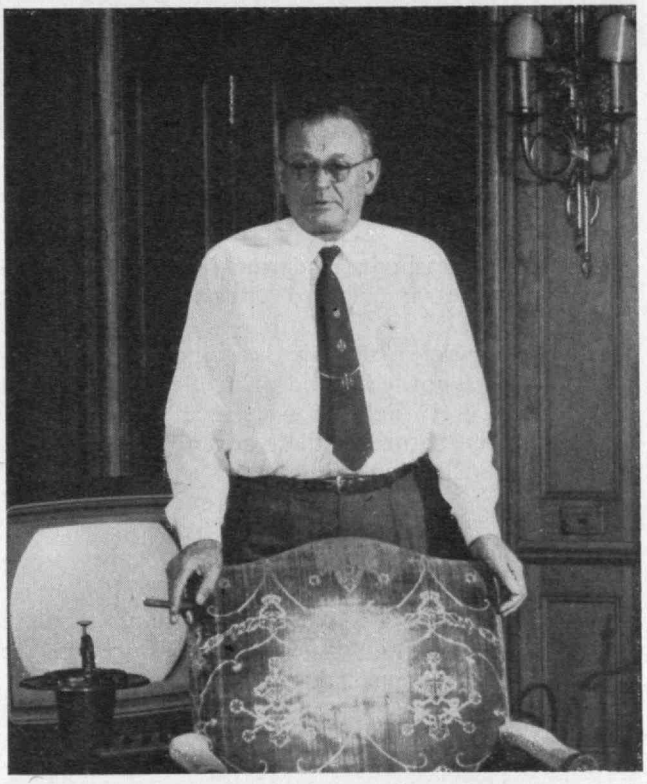
2) A thorough training in the basic and applied sciences.

3) The habit of thought that enables the engineer to handle complex problems with competence.

4) An appreciation of the methods of creating new knowledge.

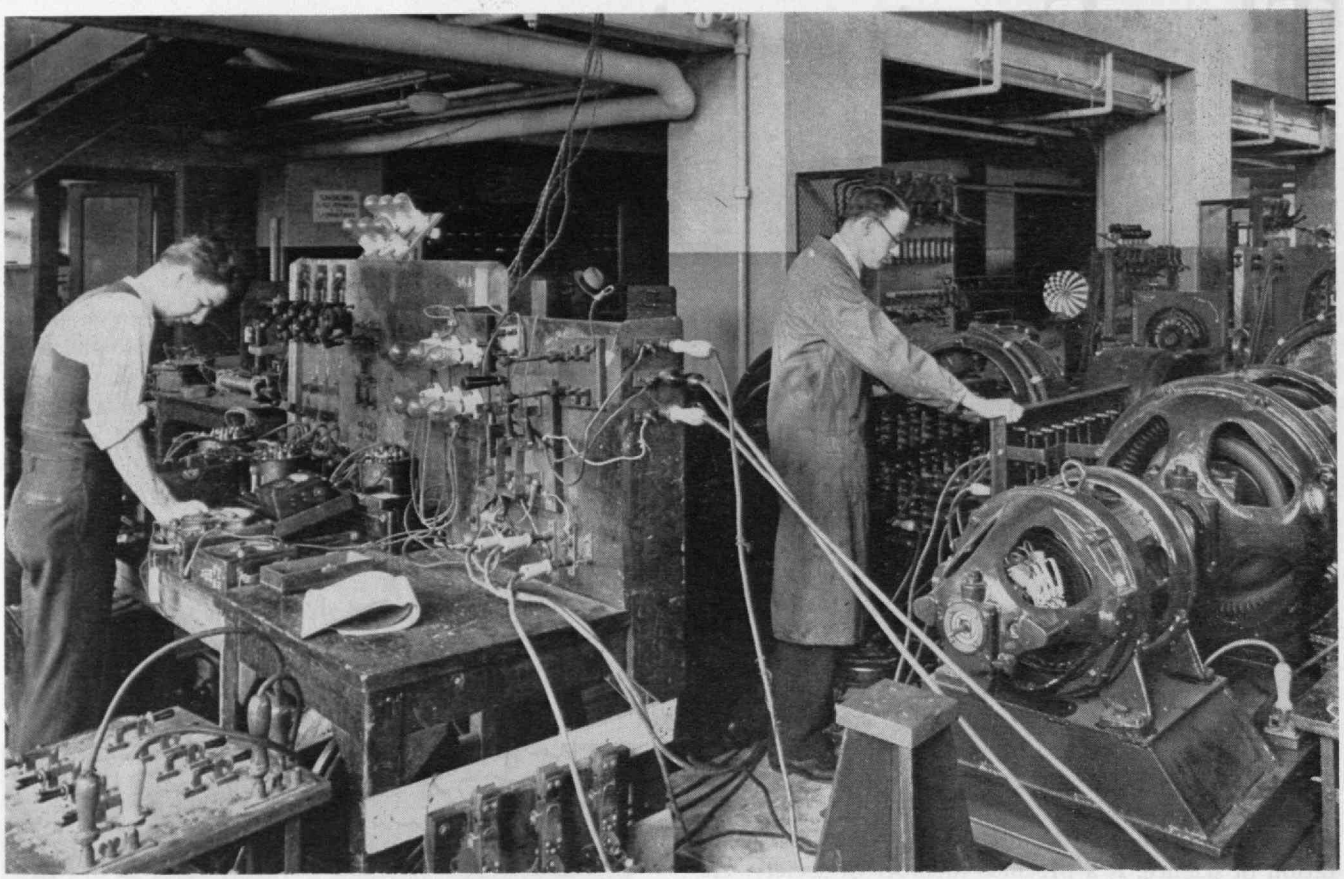
"Stating the objectives," the committee added, "is much easier than formulating and implementing a program for their attainment." What makes this task especially difficult?

President Julius A. Stratton answered this question when he spoke, in his annual report this year, of three great forces which have buffeted the engineer-



Gordon S. Brown, '31, who became Dean of Engineering at M.I.T. last July, has been one of the busiest men on the Institute's staff this fall. He received both the American Institute of Electrical Engineer's Medal in Electrical Engineering Education and the Lamme Medal of the American Society for Engineering Education this year. He also found time to tour the Dew Line, and talked to the M.I.T. Alumni Council about it.

In this article he both explains the uses to which the recent grant from the Ford Foundation will be put and expresses some of his enthusiasm for enhancing the prestige of the engineering profession by strengthening the education of future engineers.



Few machines of this sort are left in the electrical engineering laboratory. This picture was made in the 1930's. There are fewer shutdowns with lighter machines used now, and instrumentation has become much more sophisticated.

ing schools increasingly, made some of the old curricula inadequate, and forced educators to consider drastic changes.

"First," he wrote, "there is the stupendous accumulation of new knowledge and principles flowing from advances in every field of science and engineering.

"Second, the nature of these advances is such that it becomes increasingly important that students of science and engineering have a thorough command of modern physics, chemistry, and mathematics.

"Third, the traditional boundaries that have long compartmentalized one professional field from another are rapidly dissolving away, with the result that the formulations of a sound professional education are constantly broadening."

The Challenge

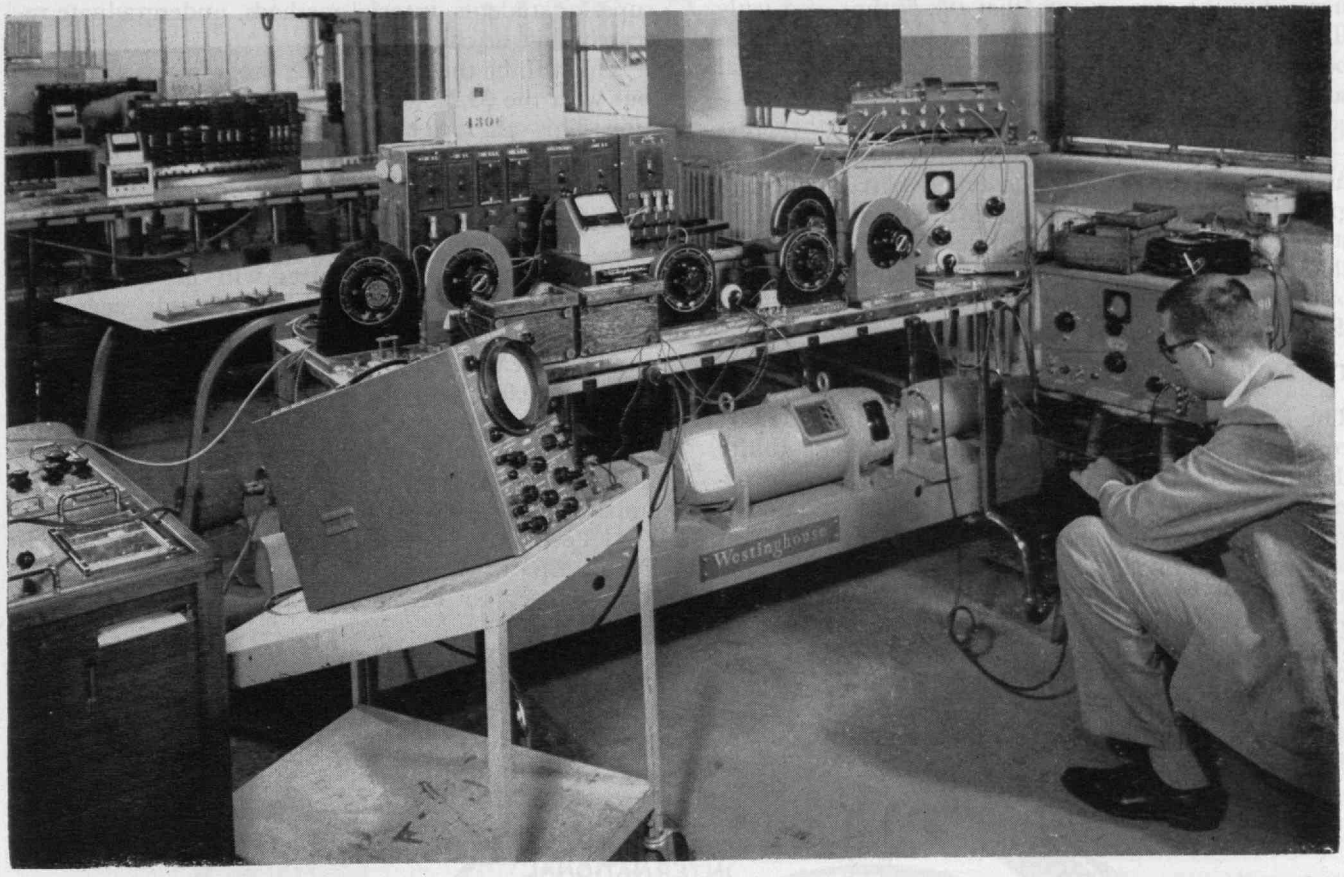
Scientific breakthroughs have come faster than engineers have been able to exploit fully the new data and concepts which have been made available. Scientists, in some instances, have become engineers, and the differences between science and engineering often seem trivial now to the layman. They were lost sight of in the Manhattan Project, and the press ignores them in reporting the efforts to explore space.

These differences, nevertheless, have significance. The engineer does not study heat, for example, merely because it is there. He anticipates and meets society's needs. He produces and delivers kilowatts when and where artisans can buy them. He devises new products which lighten men's burdens, prolong their lives, and give them fresh opportunities. He designs the new production techniques which industry must have to grow. He even produces the tools and instruments that the scientist must have to reach new frontiers. Now he must do all of these things more rapidly than in the earlier stages of the industrial revolution, and the next generation of engineers must be prepared to move even faster.

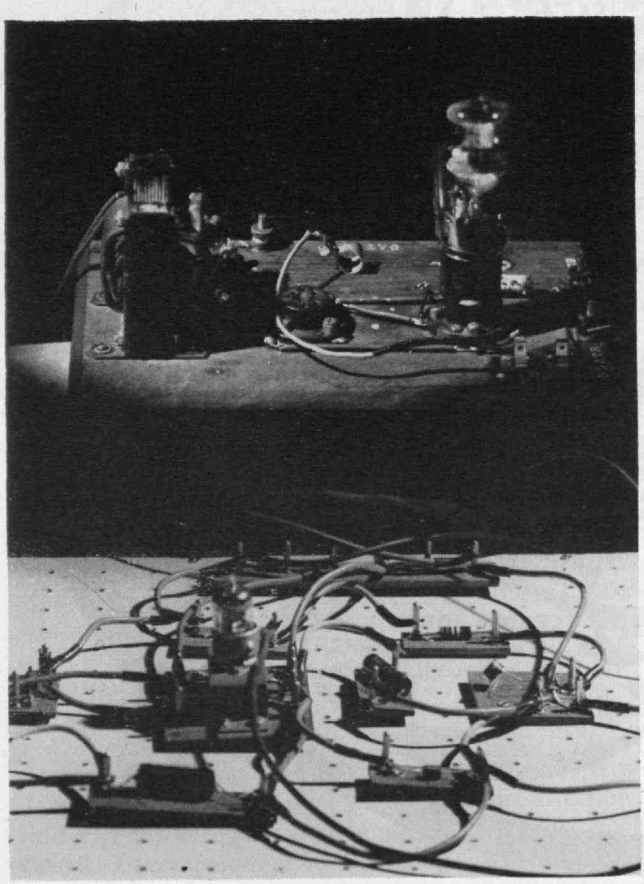
To practice any engineering specialty successfully in the 1970's a greater spectrum of knowledge will be required than was needed in the past. Already the electrical engineer, for example, is likely to be concerned both with the lattice structure of crystals and the role of computers in industrial operations; the civil engineer must appreciate both the potentialities of electronic data-processing and the complexity of radioactive waste disposal; and the mechanical engineer appears destined to be confronted with the need for machines which on the one hand operate at temperatures near absolute zero and on the other hand at the temperatures of man-made suns.

Some students have been quicker than teachers to see the need for more fundamental approaches to engineering problems, and there has been a drift away from the engineering classrooms towards the physics and mathematics departments. New courses in engineering are needed that students will recognize as manifestations of today's scientific frontiers, and that will in addition give them the insight and motivation essential to the successful practice of tomorrow's engineering.

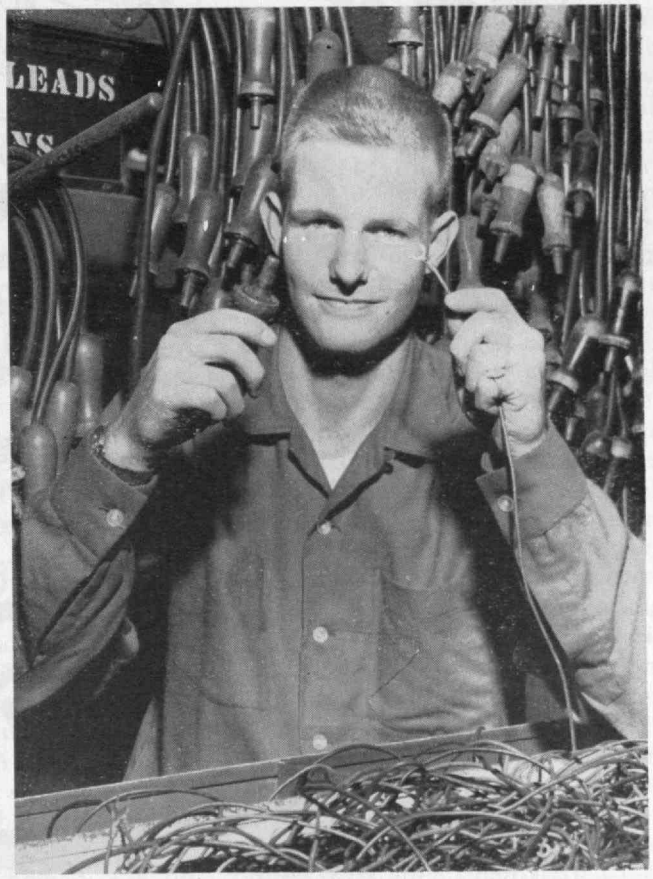
This is the real challenge. It would be comparatively easy merely to present more science to future engi-



Here a Ward-Leonard speed control system is being used with one of the generalized machines in the M.I.T. electrical engineering laboratory, to study the effect of a feedback control system on the dynamics of a machine.



The Jiffy clip board in foreground is more flexible than the pre-wired breadboard formerly used in laboratory.



Lower power levels have reduced need for heavy leads, and aided study of dynamics and transient conditions.

neers. For the same reason that the author of a truly illuminating novel, or any other work of art, must be able to add something to the findings of the social scientists, the engineer must have more than knowledgeability about physics, chemistry, and mathematics — he must know how to shape their findings in new, useful, purposeful ways. The tough part of the program that we now envision at M.I.T. will be to help students acquire the purposefulness, the creativity and the sound judgment found in the brilliant engineering of science — and become men who will get new things done.

The Institute's Program

The Committee on Engineering Education at M.I.T. emphasized the need for a faculty of highest ability that understands and continually leads in new discoveries, and stressed a recommendation that "the undergraduate educational program be developed by means of bold experiments initiated by individual faculty members, by departments, and by inter-departmental groups." It called for prompt action "in the areas of engineering sciences, material sciences, core programs, superior students, tutorial methods, undergraduate research, and teaching aids."

This will be the target of the program we will carry out with the $9,275,000 grant from the Ford Foundation. This sum is to be used by the School of Engineering in six ways:

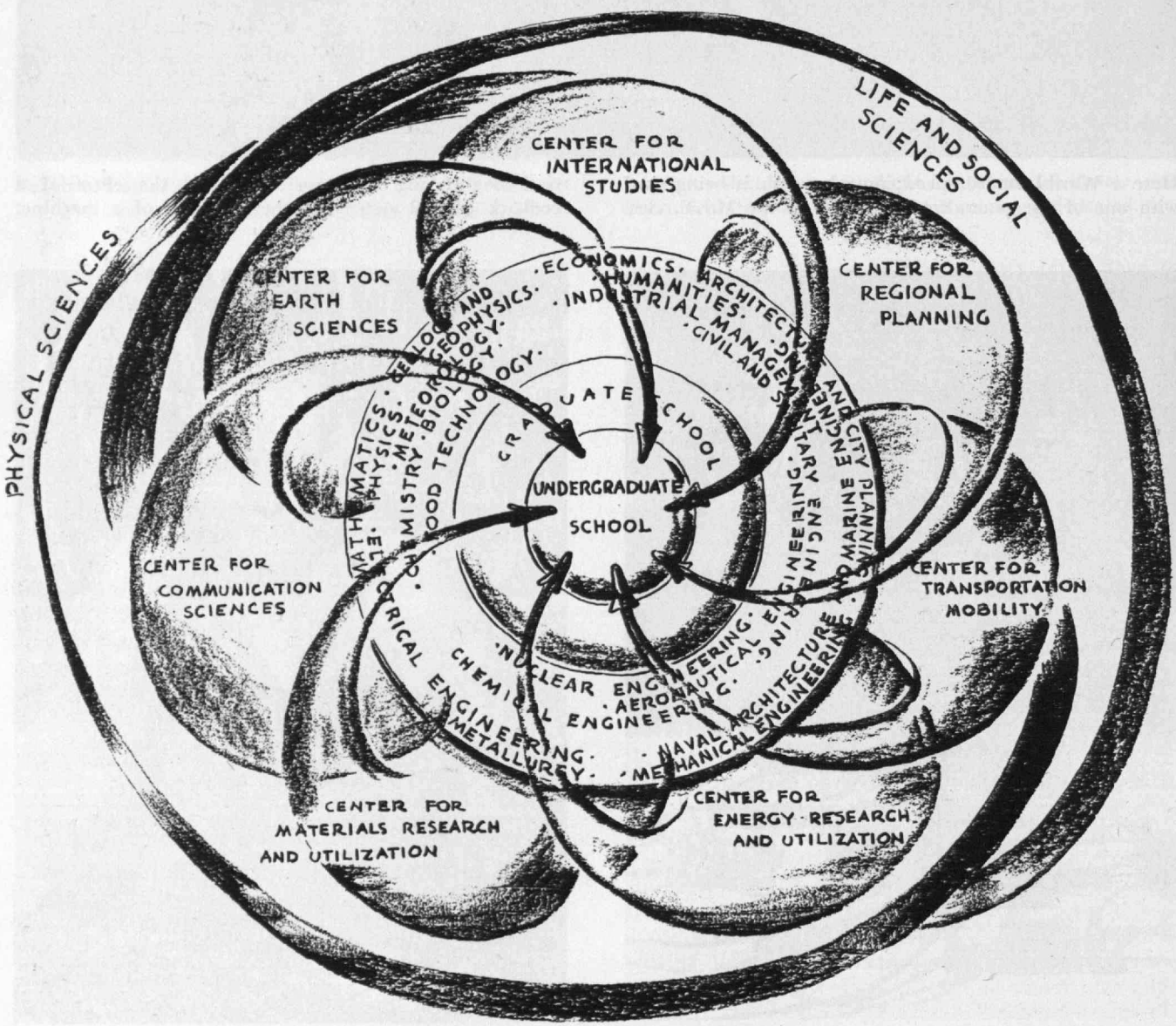
1) Seven additional professorships in important newly emerging fields of engineering will be endowed; this will take $3,500,000.

2) New syntheses of courses will be evolved, to couple the basic sciences with the newly emerging fields of engineering, and to introduce students to the "hardheaded" purposefulness of engineering; for this, $3,000,000 has been alloted.

3) New instructional laboratories will be developed to illustrate fundamental concepts and develop skill at experimental learning with new kinds of laboratory apparatus; $1,500,000 has been granted for such work.

4) Post-doctoral teaching internships and research fellowships will be offered to promising young men who expect to become professors; this will take $1,000,000.

(Continued on page 48)



In a university polarized around science, frontier fields of research, departments, schools and students can be related. This is an artist's visualization of Dean Brown's views, prepared for a visiting committee report in 1958.

M.I.T. Studies My Bones

Persons who took radium internally long ago now can help the Radioactivity Center staff study the effects of radiation

BY JEANNETTE JAMISON

Miss Jeannette Jamison, a teacher in Reading, Pa., is one of many people who took a medicine containing radium before much was known about radiation. Some of these people now are helping the Radioactivity Center at M.I.T., which for many years has been studying the long-term effects of radiation. This is Miss Jamison's story of her experiences.

Robley D. Evans, Professor of Physics, directs the work that Miss Jamison describes. It is conducted under contract for the Atomic Energy Commission. The Center's program has been intensified during recent years.

A nickel's worth of radium "taken internally by means of radioactive substance will kill a person in 10 to 15 years if it becomes fixed in the body."

This sentence flung itself at me early one November morning in 1936 as if it were the only news item in the paper and as if it were meant for me alone, telling me to forget everything on my agenda for that day. The pages of my fairly recent past — suddenly wide open — were staring at me! I wondered how I happened to be standing there alive. It was a one-sentence summary of a lecture given the day before to a group of physicians by one Robley D. Evans of M.I.T. and seemed to say more than everything the lecturer could possibly have said. I began looking at my years as I never had done before.

In 1926, I had a toxic goiter and a physician who was unwilling to have it removed by operation. He induced me to try the then very new radium-charged water called "Radithor." The word *radium* seemed to me to carry with it magic, the magic of perfect health suggestion, and Radithor was represented as an elixir of life that would make people lose whatever ills they might have. As far as I knew, I was in almost flawless health except for the goiter, but naturally I wanted to get rid of that. And so being easily convinced, I soon began something to which there can never be an end.

Radithor contained, I found out later, both radium and mesothorium, two powerful compounds well known for what they are to scientists, but not to the scientifically uneducated, of whom I was obviously one somewhere near the bottom of the list. This concoction was very costly; hence I thought it must be valuable. Like a goodly number of other incompetents, I laid in a considerable supply — at a dollar a bottle. Each patient was urged to take at least one a day. I thought I could better afford such expenditure from my modest salary than go on with a goiter growing up prominently on my neck for everybody to look at. Vanity seemed to be one of the several growing symptoms of distress.

Every day a dollar's worth of the promising stimulant gave me confidence together with an exhilarated feeling of well being. I felt exceptionally vigorous and happy while taking it. The goiter thrived like the rest of me, and did not diminish by the fraction of an inch. This went on and on for a long time — a dollar a day for over a year! Then for some reason I began to take smaller amounts. Just what argument I used to bring myself to this change, I do not now recall, for if several bottles a week could not do the trick, I do not comprehend now how I imagined fewer bottles could. At any rate, over the next two years, there was a gradual decreasing of the dosage from seven to three bottles a week, then to two and finally to one. At last however, I realized, with the doctor who was responsible for the original decision, that the whole performance was netting me nothing in regard to the lump on my throat. Several other doctors were of the opinion that an operation was all that would succeed and that there was no wisdom in waiting longer. So, three years after I had started taking Radithor, I stopped altogether

and in June of 1929, I went to Philadelphia's University Hospital for healing by surgery.

That was a long time before the Reading, Pa., *Times* gave me the jolt of my life on November 27, 1956.

* * *

On March 31, 1932, a well-known socialite playboy, who was also a steel manufacturer of prominence, one Eben Byers, died of radium poisoning in Pittsburgh, having imbibed, so the papers screeched from coast to coast, a radium-charged water called Radithor between 1926 and 1929!

The papers made much of this exciting item about Mr. Byers. He had been wealthy, and as I read, I perceived that he had not tapered off in his intake of the valuable stuff as I had. In fact, in my careful reading, I discovered that he had taken sometimes two, sometimes three bottles a day — in all, about 1,400 bottles. In my relative poverty I had taken possibly 400. There was, for a little while, at least, considerable satisfaction in the knowledge that I had taken about 1,000 bottles less. The broad headlines that marked Mr. Byers' passing were followed the next day by others, equally devastating to me, to the effect that 100 more persons were in danger of similar death. The laboratories in East Orange, N.J., evidently had been besieged by news hounds who had somehow searched the records of sales.

Knowing what I knew about myself, I read all headlines and articles in silence, realizing that there was not a thing I could do to change the situation within myself, to extract whatever residue of radium might still be in my bones from that exciting liquid I had enjoyed so much. I went as usual about my business of teaching English in the Reading, Pa., Senior High School saying nothing to anyone, but wondering often what the future held for me and how soon I should know. But the years passed smoothly, I was well, and my work gave me happiness, so I forgot all about radium and what it might do to me until suddenly Robley D. Evans gave a lecture to physicians and talked about what a "nickel's worth" would do.

How many nickels' worth of radium had gone into the fate that was in store for me? I did not try to figure it out. I did not need to; 1936 was the 10th year after my story had begun. I wrote to Dr. Evans and told him everything. Almost at once, I received a reply to the effect that it would be wise for me to visit those famous halls of learning and investigation, as speedily as possible, that it might be determined whether anything could be done for me or not. As my life was extremely precious to me, Cambridge did not seem too far away.

Dr. Evans told me by letter that he had been studying for several years with interested physicists, both in the West and the East, the question of counteracting the effects of radium poisoning and that "encouraging progress had been made." This was comforting, at least, and after the exchange of several letters regarding the time of my actual visit to M.I.T., I arrived on March 26, 1937. Dr. Evans received me with gracious friendliness, invited me to be seated there in his laboratories, and talked with me at length about my life up to date. I was unaware for a long time that there were electrical devices attached to the chair on which I was seated that were checking the amount of radium still occupying my bones and writing notes, via a mechanically controlled pencil, about the findings.

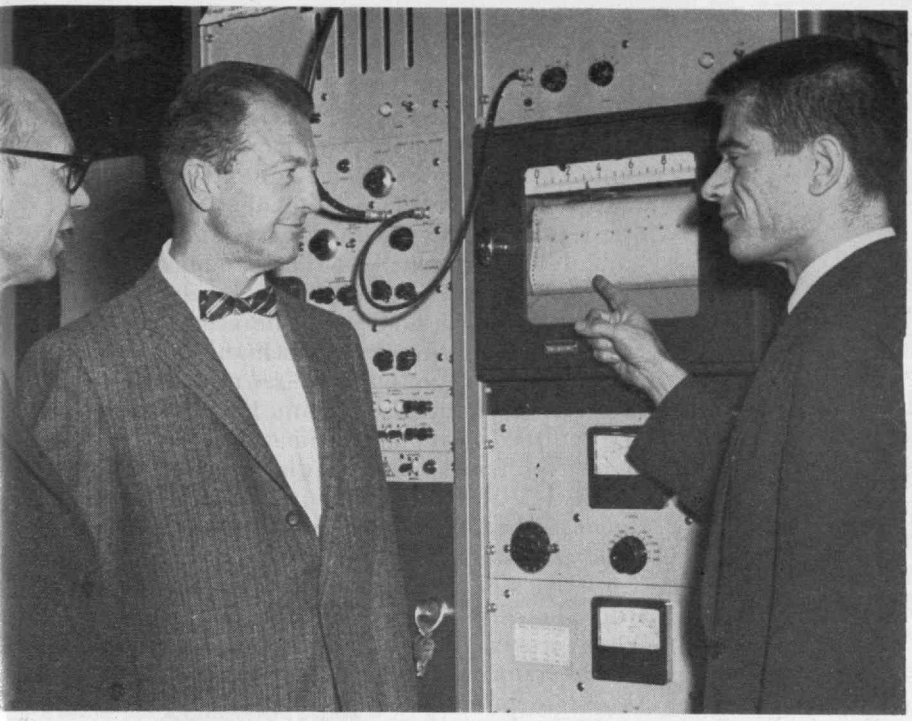
Upon leaving M.I.T. that day, I was taken to the Huntington Hospital, where a most friendly physician, Dr. Joseph C. Aub, of the Harvard Medical School, began immediately to investigate every bone in my body by means of x-ray machines to discover, if he could, any lingering bits of radium.

* * *

Results of all of the analyses made, all the information obtained, were sent to my regular Reading physician. There *was* evidence, they said, that there was stored in my bones enough radium to cause trouble in the future; just what or when or how they could not indicate. The only theory advanced as to why I had not already gone the way of Mr. Byers was that the radium taken during the growth of the toxic goiter might have been excreted because of the high calcium output associated with the goiter. A low calcium diet was prescribed for three months in the hope of pulling out radium from the bones. A dose of ammonium chloride was also prescribed to be taken every day for that length of time. I adhered faithfully to my instructions but I determined before I was halfway through that I should never be induced to repeat the experience regardless of results. Eventually it was learned that the procedure had been somewhat effective, in that, because of it, there was an infinitesimally smaller deposit of radium detectable.

All of that 22 years ago. Those wonderful people have kept in touch with me, writing to me every few years general letters of inquiry and of invitation to come again for observation. Six times I have gone, and six times I have been welcomed as an active partner in scientific investigations. What might have been an exhausting, gruelling trial has become, in this atmosphere of friendly co-operation, fun! In the early visits, we began joking about my "million dollar bones" and I became the "gamma ray guy." Often I have again sat, as I did that very first time, in the chair rigged up with all kinds of queer unintelligible wires, electric cords, things that looked like batteries but probably weren't, and long tube-like counters that reminded me of black bananas. Here and there were steel clamps that seemed to hold together long slender cane-like supports. Always the eminent and the sub-eminent personalities of the Institute have flocked around me — physicians and physicists, chemists and students of different fields — and I have felt peculiarly honored.

Mary Margaret Shanahan assists Dr. Clark in radioactivity work.



From left to right are Dr. Samuel D. Clark of the Medical Department and Professor Evans and Robert A. Dudley, '51, physicists.

Often a room or hall has been filled with mysterious apparatus, brought to that spot for the sole purpose of learning about *my* bones! The experiment that I have liked least every time is one in which I wear an aviator's oxygen mask over my face. They never provide a mirror for me, but I am sure I look like a black cat with a long tail wound coyly around my left shoulder. Brilliant-looking, pleasant, young men and women stand around muttering profound statements; at least, I can only suppose they are intelligent and profound, for they are far beyond my comprehension. These young students work now with one instrument and now with another behind "scalers" which are like huge batteries or in front of a huge glass (or, in the latest experiment, plastic) water container playfully called "Puffer II," which seems to be recording the radium or mesothorium in my breath. If you know how or why such a thing is possible, I salute you as a far wiser soul than I am. But ignorant as I am, I am thrilled each time by being in the presence of all of these intellectually elite.

Equipment such as this is used in the radioactivity laboratory.

The water tank test is always interesting. At least two, sometimes three, young scientists work on it. Sometimes the tank rests within a wooden framework and out of it emerges what seems to be another glass tank inverted and slightly smaller, which goes up slowly according to the rate of my breathing. Cast-iron weights on one side, attached to the tanks by means of ropes that run up over two different sized pulleys at the top, control its movement upward. I observed inside these glass holders a long slender glass tube that resembled a hollow cylindrical ruler with markings on it. By means of all this, the young scientists learn the secrets of my breath and its invaluable content of radium. Occasionally they leave the task and stand in a huddle discussing data.

At the side, the counters and scalers work on, ticking, or as in the latest visit, flashing little crimson lights, reminding everybody of telegraph offices on a night of a presidential election, but actually only taking an accurate record of radioactive elements in the room. The flashing counter is called a "scintillation spectrometer," which, I am told, has superseded the noisier Geiger counter and measures radium content not by clicking but by brilliant small flashes of red light, and is a much stronger detector. Endless seem the periods of watching this fascinating new invention! After its reactions to me have been noted, a "neutral" (person with normal bones) is put in my place and I am sent outside the room so that I may have no effect upon the recording. This goes on through the hours with me in various positions and at varying distances, and then the neutral takes his turn in the same poses and at the same distances.

* * *

In moments of freedom from these counters, I am escorted to the X-ray Department where joints and skull have their chance at inspection. Then an M.D. takes over. My life history since radium entered my living routine is reviewed, including my present habits, my eating, drinking, general living — all are given the most careful attention!

And throughout all of this procedure, every one of these distinguished and near-distinguished individuals becomes a personal friend, completely, honestly, considerately interested in my welfare. But as far as I know, not one of them has yet discovered why I still live in remarkably good health while Mr. Byers died a terrible death a quarter of a century ago.

Books

THE TEMPTER, by Norbert Wiener; Random House. *Reviewed by John Lear, Science Editor of The Saturday Review.*

PROFESSOR NORBERT WIENER, the father of cybernetics, has completed another experiment in communication. It involves the transmission of a message through the pages of a book entitled *The Tempter*. Contrary to his usual practice of eliminating all possible noise from his carrier channels, the professor in this experiment has introduced, with apparent deliberation, some confusion by allowing the book to be advertised as a novel.

Norbert Wiener*

The Tempter bears none of the conventional marks of the novelist's craft. It is not even cast in novel form, lacking either development of scene or dramatization of conflict. Unawareness being one trait that cannot reasonably be ascribed to Dr. Wiener, I must suspect him of something considerably more subtle: of making a test of the feedback mechanisms of American science under superficially annoying but fundamentally insignificant difficulties. The valid and vital question I read between his lines is this: Are scientists sufficiently sensitive in their perceptions to recognize a disaster call that is not preceded by the air-clearing cry of MAYDAY?

Presented as a long narrative letter from an older man to his godson, *The Tempter* sounds exactly like what it purports to be. The language is simple, straightforward, clear and compelling. The book gains, rather than suffers, from absence of the novelist's manipulation. No responsible man who was trying to pass on to a truly loved godson an honest account of the successes and failures of the godson's father would run the risk of "hopping up" his story. He would chronicle with restraint, understating every excitement. *The Tempter's* author writes his memoir in this fashion with such fidelity that, although Dr. Wiener insists his work is fictional, the reader keeps asking himself: Who are the real people behind the masks? What small eastern college, bucking for university status, prostituted its good name and its faculty's integrity in return for the gift of an expensive laboratory? Which professor sold his soul for $750,000? Whose solid old family name was used as a blind for the pyramiding of which of the present-day giants in industry? What famous theoretical scientist was robbed not only of money, but, more importantly, of recognition of the priority of his ideas, in order that a fabricated patent claim could stand up in the courts?

The significant thing about *The Tempter* is that a man of Norbert Wiener's stature, famed and far from penniless, still in the prime of his years with students at his feet, should feel the need to write it. Consider the large questions which this book raises:

At a time when the future of free men depends on the rigorous examining of nature, how can universities be returned to the approximate neighborhood of their own professed ideals of disinterested searching for truth?

How can the patent system be modernized to protect and encourage the innovators?

Can lawyers be brought to concern themselves with guarding honesty in expert scientific testimony?

What recourse will the young subordinates in research laboratories – academic as well as industrial – work out to protect their collective ideals from the individual maraudings of scientist-politicians?

An engineer-administrator is the villain of *The Tempter,* but the indictment that stands plain in this memoir from Professor Wiener's imagination does not stop with him; it reaches into the background of the times, where docile scientific societies back away from the real issues by voting medals in lieu of full recognition to original thinkers.

The Tempter deserves to be read by every man and woman of science. It ought to be read in conjunction with A. V. Kidd's new book on the relationships between government science and the universities. Together, these two volumes make it painfully clear that scientists can no longer expect to be exempted from responsibility for the social impact of their science.

MEN DIE, by H. L. Humes; Random House. *Reviewed by Frederick G. Fassett, Jr., Dean of Residence.*

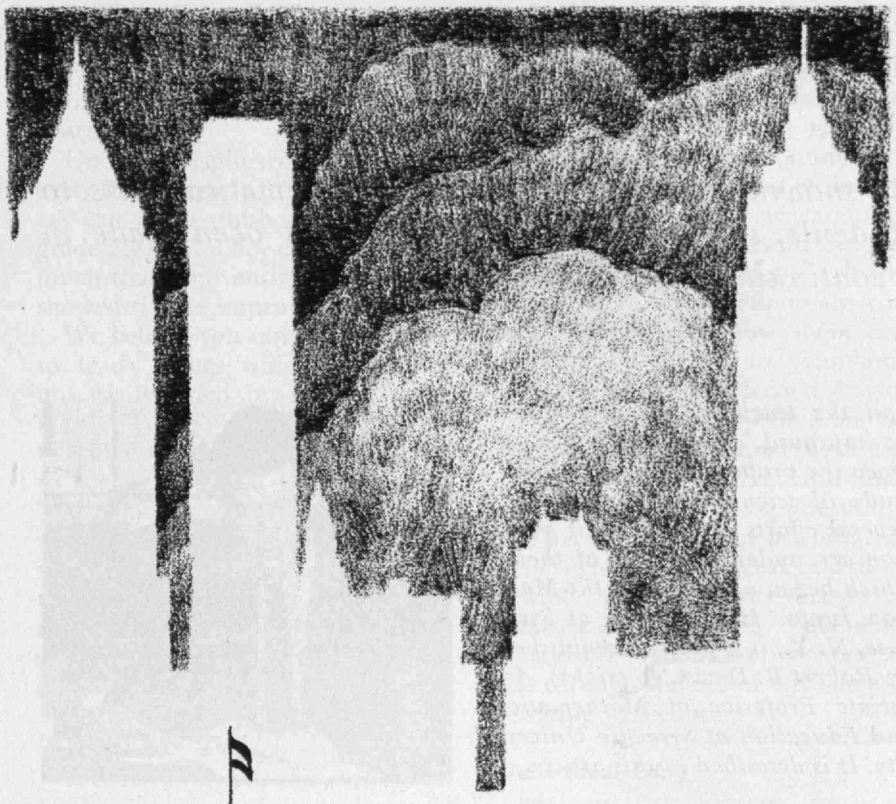
THE CORE of this rather swift-paced and impressionistic novel is an explosion that destroys an island ammunition base, killing all of its Navy garrison save six Negro seamen who are under arrest as mutineers and the Lieutenant (JG) who is their self-appointed warder. Such plot as the tale has consists of the gradual unraveling of the history of the dead Commander of the base, his dead second in command, his beauteous and high-strung widow, and the curious intermingling of their lives long before Hake, the Commander, drew his hated assignment. The Lieutenant (JG) who survives acts as intermediary in this unraveling, with the six mutineers – who are admirably realized – as the chorus and as perpetrators of a cosmic joke unrevealed till the end.

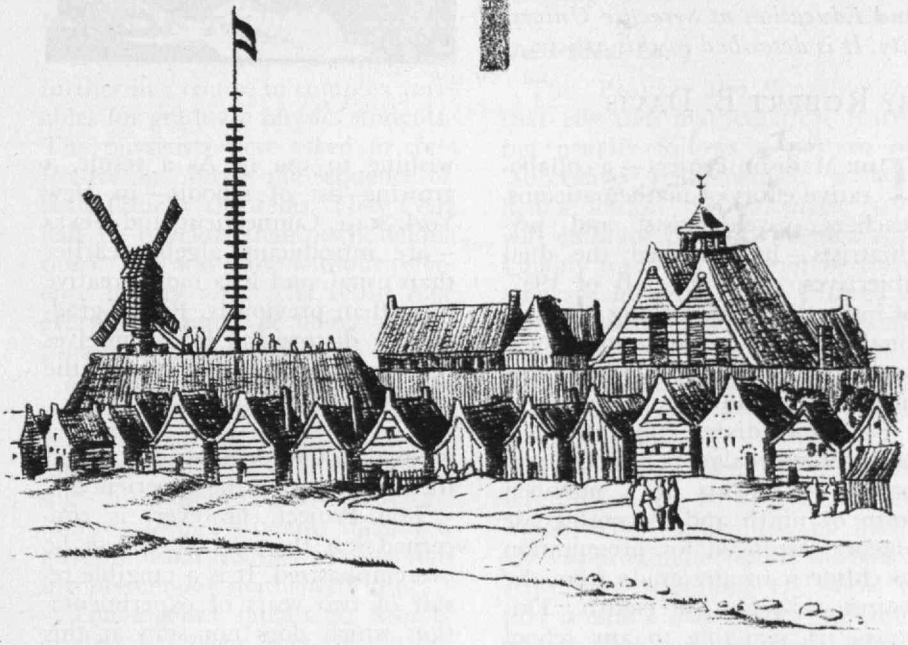
Stylistically, the book is at once interesting and exasperating. Mr. Humes, '49, can play Faulkner, Hemingway, Joyce almost at will, and does. For this rather unusual presentation of feminine eroticism, he employs not one but two streams of consciousness, the second apparently serving as commentary on the first. When he is himself, his prose is terse and vivid.

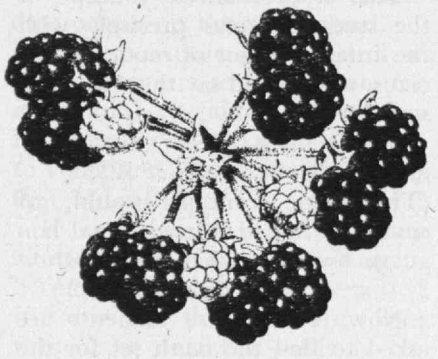
* From an exhibit of sculpture by Beatrice Paipert.

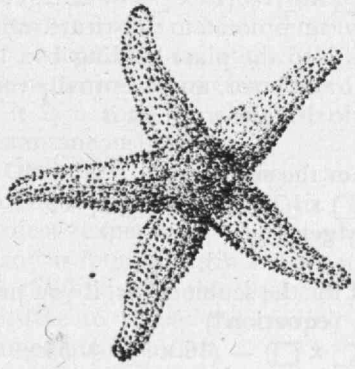
New York City's Natural History

THESE are illustrations from *A Natural History of New York City,* by John Kieran, published this fall by the Houghton Mifflin Company. They are the work of Henry B. Kane, '24, Director of the M.I.T. Alumni Fund, who also drew the sketches for the article that begins on the next page of this issue of The Review.









How Do We Learn Mathematics?

By showing, rather than telling, mathematical facts to students, some remarkable progress has been made in a continuing research project

Can the teaching of mathematics be improved, and more youngsters given the proper foundation for the study of science and engineering? Several efforts to answer this question are under way. One of them, which began operation in the Madison Junior High School, at Syracuse, N. Y., is a project established by Robert B. Davis, '46 (right), Associate Professor of Mathematics and Education at Syracuse University. It is described in this article.

BY ROBERT B. DAVIS

THE Madison Project – a collaborative effort of mathematicians, teachers, psychologists, and psychiatrists – has pursued the dual objectives, since the fall of 1957, of improving the teaching of mathematics and investigating some basic hypotheses about who learns mathematics, how, and why.

For immediate application, a basic course in algebra has been prepared. It consists of a modified form of ninth and eleventh-grade algebra, arranged for presentation to children in any grade from the fourth through the eighth. This course is available to any school wishing to use it. As a result, a growing list of schools – in New York State, Connecticut, and Texas – are introducing algebra earlier than usual, and in a more creative form than previously. Fourth-graders are discovering for themselves that the product of the roots of the equation

$$x^2 + bx + c = 0$$

is equal to the constant term c, and they are enjoying the experience.

The Project, however, is concerned lest this specific course be overemphasized. It is a tangible result of two years of experimentation which does not stop at this point. As often happens, one tangible practical result can nearly obscure a continuing program of research. The experimentation is planned to continue into the future, without any foreseeable termination date. The Project has learned how to teach some eleventh-grade mathematics to seventh-graders – or even to fourth-graders – but this is a very small fraction of what may be learned if suitable means of investigation can be devised.

One Project activity has included teaching algebra and co-ordinate geometry to some potential delinquents in the seventh grade. These children came from severely deprived backgrounds. According to tests, they averaged an I.Q. of about 80.

The question then arises: What, exactly, does it mean to say that these children have an 80 I.Q.? The Project work thus far suggests several hypotheses. Much of their difficulty appears to be a severe limitation of verbal communication. When they are shown the *open sentence* (equation, in common parlance)

$$3 + \square = 5,$$

they will put a 2 in the box.

Without much recourse to language, they can recognize the equation as a "condition": that is, some numbers (namely 2) will produce equality, while all other numbers fail to do so. Moreover, they are able to use this understanding to solve the problem, even though nothing has been explained to them.

This nonverbalized concept of the student agrees precisely with the interpretation of modern logicians, who would say that the *open sentence*

$$3 + \square = 5$$

determines the *truth set* $\{2\}$.
(This same concept would, of course, be stated in traditional language by saying that the *equation* $3 + x = 5$ has the root $x = 2$.)

Now, when these students are asked to find the truth set for the open sentence

$$(\square \times \square) - (13 \times \square) + 22 = 0,$$

they can proceed to substitute numbers into the place-holding box by trial and error, and eventually conclude that the truth set is

$$\{2, 11\}.$$

For the sentence

$$(\square \times \square) - (14 \times \square) + 33 = 0,$$

they get

$$\{3, 11\},$$

and for the sentence (or, if you prefer, "equation")

$$(\square \times \square) - (16 \times \square) + 55 = 0,$$

they get

$$\{5, 11\},$$

Somewhere along here they make a discovery: if you *multiply* the two elements of the truth set, you get the last coefficient; if you *add* them, you get the middle coefficient.

They can now solve

$$(\square \times \square) - (5 \times \square) + 6 = 0$$

by reasoning:

$$3 \times 2 = 6,\ 3 + 2 = 5,$$

hence the roots of the equation are 3 and 2.

These "low-I.Q." students have discovered for themselves a mathematical fact usually taught in college, and they can use this fact in solving new problems!

The *mathematics* has not been too hard for them — in fact, it has been fun. But if we had *told* them the mathematical result, they would have looked at us uncomprehendingly. Words are not effective, it appears, in communicating with these children. Fortunately, we can *show* them mathematics with a minimum use of words.

Socratic Algebra

What, then, is the difficulty at the root of these children's "low I.Q."? Obviously, we do not know, as yet, but there are several tempting hypotheses:

1) The children have not learned to communicate effectively by using the literal meaning of words. (They *can* use words effectively to intimidate others on the playground.)

2) They require a great deal of adult attention, to compensate for deprivation at home. (When they have an answer, they want a teacher to come and look at it right away that instant!)

If mathematics gets immediate adult attention, they are willing to become interested in mathematics; if it does not, they can start a fight with their neighbor — this is certain to get immediate attention. They have very little frustration tolerance in this matter. Their need for attention is overwhelming; mathematics can interest them only if it is a road to adult attention instantaneously.

Obviously, one teacher cannot handle a class on this basis. The Project experiment has used as many as four adults in a room with 15 children. On this basis, it was possible to satisfy the craving for immediate attention.

3) These deprived children can learn only from an adult whom they like and respect. (They are strongly prone to suspicion and hostility.)

Under the right conditions, however, these "low-I.Q." seventh-graders can learn ninth and eleventh-grade algebra! They enjoyed this so much that their entire school work showed sizable improvement.

We believe you can use *questions* to teach things which you could not easily teach by making *statements*. To test this hypothesis we taught our Socratic algebra course to a class of gifted fourth-graders. The response was even more favorable than we had hoped. To our surprise the fourth-graders showed more talent for *abstract* mathematics than we have found among older children. This potential deserves considerable further study.

Define It Yourself

We have tested this approach further in a course in complex variables for graduate physics students. The physicists were asked to conjecture and prove the sequence of basic Cauchy theorems. They even had to develop their own definitions. This was done without reference to any text. The result had every appearance of being an unusually successful course.

(A similar "do-it-yourself" approach has been used for some years by Prof. R. L. Moore at the University of Texas; it is interesting to observe that Professor Moore's former students include a quite unusual number of outstanding present-day mathematicians.)

The algebra taught to fourth-graders has been *inductive* or *experimental:* that is, the students learn by generalizing from specific examples. We now plan to study the possibility of a *deductive* approach at the fourth-grade level: can children this age use *implication* as effectively as they can *generalization*?

Another hypothesis of the Project is that *secure learning* is a *nonverbal* result of *experience*. This can be explained by a nonmathematical simile: one can go from Harvard Square to Symphony Hall by having a written sheet of instructions, and following it carefully: "enter subway at Harvard Square, take train to Park Street . . ." and so on. If the instructions are correct, and if we follow them correctly, we will get to Symphony Hall. But there is a second way of navigating: we can spend time becoming well acquainted with the Boston-Cambridge area, and then use our familiarity to guide us.

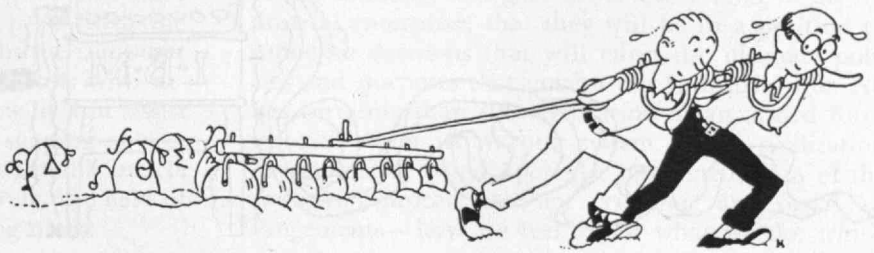
This second kind of learning, we believe, is far more secure and more flexible than the rote-verbal (or "cook-book") approach. This belief is another hypothesis we hope to test through the use of our Socratic teaching procedure.

Hard Ideas Early

The Project also hypothesizes that effective mathematical learning usually follows a pattern of "successive refinements": a student's notion of *derivative* (say) will embrace part of the idea reasonably well, but will not be fully accurate in detail. The Project is experimenting with this gradual successive refinement, in contrast with the more commonly used idea of trying to get a concept right from the very first.

Thus, for example, we can ask seventh graders to find a number which, when multiplied by itself, gives approximately 2. By trial-and-error, they may find 1.4. Now, if this is not a satisfactory approximation, they can continue the trial and error procedure, and find 1.41 as a somewhat better approximation.

This approximation procedure has a striking property: it is "arbitrarily" refinable — if you are not satisfied at some stage, you can go on to a still better approximation



that will meet stricter specifications. Any positive "tolerance" can be used.

By starting such ideas early, we can gradually refine them until we have (say, by grade 11 or 12) a well-developed understanding of the concept of *limit*.

This is another distinctive Project hypothesis: whereas some people believe that "hard" ideas should be deferred until later in a student's life, the Project is testing the opposite procedure. Precisely because these ideas are hard, we introduce them, in simple form, as early as possible, so that we have many years in which to refine them, and to investigate subtleties and implications. Thus, the Project begins with the ideas of slope, limit, equivalence, class, function, etc., at least as early as grades seven and eight.

Visualization With Vectors

Another hypothesis relates to *how we think about mathematics.* We are testing the hypothesis that the use of suitable semi-geometric visualizations is frequently superior to a purely verbal or symbolic way of thinking. Formally, one can say that

$2(x-3)+5(y-1)+3(z-7)=0$

is the equation of a plane. We can give this geometrical meaning, however, as the inner product of two vectors,

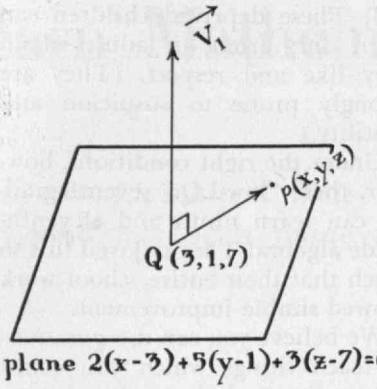
$$\vec{V}_1 = 2\vec{i} + 5\vec{j} + 3k,$$

and

$\vec{V}_2 = (x-3)\vec{i} + (y-1)\vec{j} + (z-7)\vec{k}$

which must, consequently, be perpendicular. This gives us a very valuable method for visualizing the meaning of the condition which the equation states.

Several distinctive features of the Project (which, incidentally, is supported by the Marcel Holzer Foundation of New York, and by the Alfred P. Sloan Foundation) have been suggested implicitly: for one thing, the Project is concerned with all mathematics education, from the elementary grades through

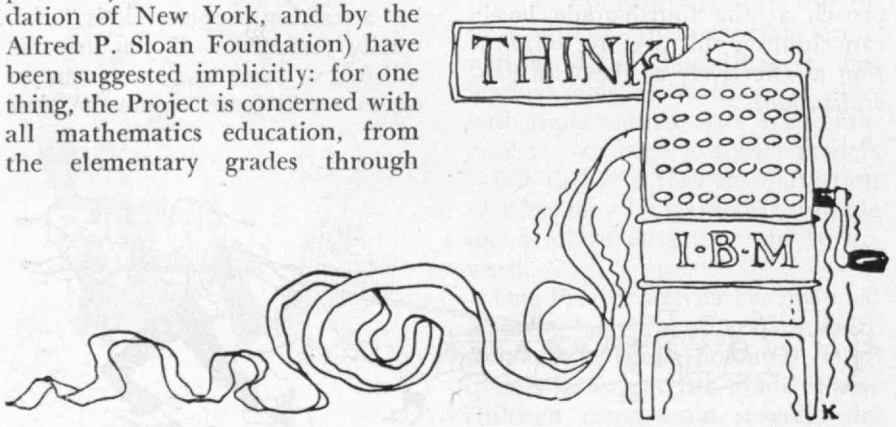


graduate school, since discoveries about learning in one area can often be used to illuminate others.

Moreover, the Project is interested in research under optimal conditions for learning – as, for example, in the work with delinquents, where we have used as many as four teachers in a single class of 15 students, in order to provide a generous measure of individual attention. The basic algebra course is a product of this research – it can be taught under typical school conditions, but the research itself is not limited to what can be taught by any teacher, or in any school. We are particularly eager to find the limits – what is the most that a student can learn, given optimal conditions for learning? We believe that this is, in fact, a very great deal – many people, we suspect, can learn a large amount of mathematics, given suitable conditions of study.

Finally, the Project wishes to relate the specific problem of learning mathematics to more general questions of human behavior – in particular, to the processes of thinking. We are already working on the "psychology" of computing machines, as another approach to this same problem.

The apparently "special" study of the apparently "hopeless" problem of mental illness gave rise to profound general insights of psychoanalytically oriented psychology. How people learn mathematics may seem a very limited field, and improving anyone's basic mathematical abilities may seem hopeless, but if we tackle this problem conscientiously, who knows what we may not learn?



A Teacher's Report On the New Algebra

THE Binghamton (N.Y.) *News* recently interviewed a teacher who had studied the method described in the preceding article, while at Syracuse University, and now is using it in his classroom. The newspaper reported, in part:

"The solution of 'unknowns' in even the simplest algebraic equations, long has been considered too tough for run-of-the-mill pupils below Grade 10 and even for some of the brighter below Grade 8. But Mr. Seely's 8B class is learning it, nonetheless, and the new way it's being presented to them this fall appears to be relatively painless.

"For one thing, the teacher is taking his time, permitting his pupils to learn, almost on their own, the fundamentals of solving equations.

"He's not telling them that it's algebra they're learning, in what is primarily a 'general math' class, nor is he giving them any algebraic rules to memorize. That seems to make a big difference in their responsiveness.

"Mr. Seely's class is one of several, in junior-high mathematics, where new concepts of teaching a traditionally dry and tough subject are being tried out in the Binghamton school system.

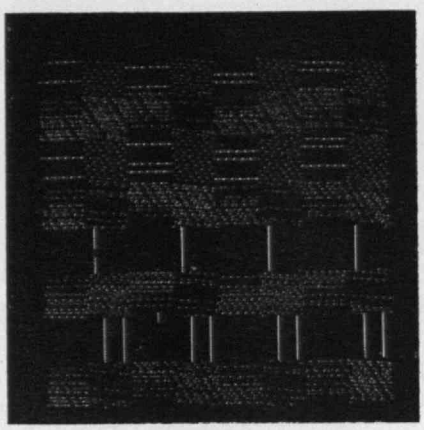
"The experimenting teachers learned new methods at various graduate-level college courses last summer, and returned to their classrooms to apply what they'd learned. . . .

"Mr. Seely, experimenting with the Madison Project method, said he will tell his pupils the rules only after they have learned to work the problems that apply to the rules.

"Thus, they will arrive at the rules, as did the mathematicians who originated the rules, through necessity, trial and error.

"Mr. Seely said he's getting 'excellent results' using the Madison Project method, and continued:

" 'It's getting rid of this old bugaboo of algebra being a monster. The introduction to the subject is very soft, using what the students already know. When they find it's easy, then I let them know they've been studying algebra all along.' "



by ELTING E. MORISON

The Pertinence of the Past

To write satisfying computer programs, we must first write them for ourselves

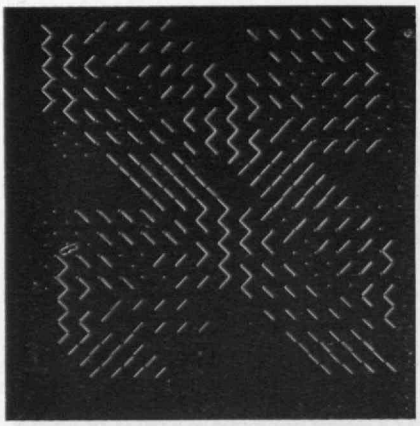
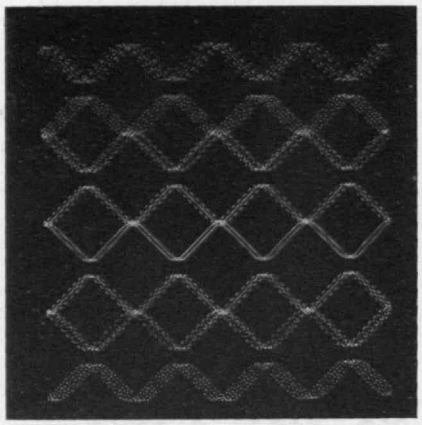
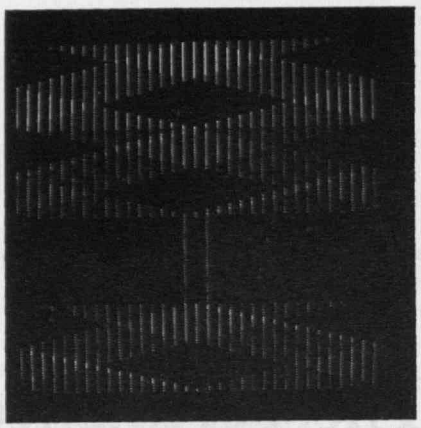
This paper, as it was delivered at a convocation of Sloan Fellows, began with a description of the war against the submarine in 1942-1943. In those years a series of decisions were taken by the armed services about the kinds of weapons to be used, the way in which the weapons would be used, the distribution of forces and command relationships. The purpose of this preliminary description was to demonstrate that in any situation involving men as well as materials and mechanical energies, there are always present, no matter how filled with quantitative data the situation may be, powerful human considerations that are still incommensurable. These incommensurables – a tangle of memories, prejudices, emotional needs, aspirations, common decencies and so forth – exert a tremendous and probably always a determining influence upon the real (or the total), as opposed to the exposed, nature of a situation. Any wise decision in such a situation must take into account not only the data from which logical conclusions about present operating efficiencies can be drawn, but that other data which leads to the non-logical understanding of what human beings are, need, and want to be. In the naval anecdote as told, the decision arrived at by a calculation of cruising speeds and fire powers was modified by a further calculation of the non-quantifiable needs of the naval society. That is why E. M. Forster, the British novelist, said that the only true history is the history of the human affections. All others, even economic history, he said in an unnecessary aside, are false.

With these things in mind my intention is, in this paper, to try to find out what may happen to the affections in the time of the computer. What I want to try to do is to raise a few very tentative propositions – an agenda of the kind of thing we will have to think about as we seek to live at peace with the machine. You all know some of the jobs the computer can do today – how it can prepare payrolls with deductions for the individual case, how it can assist in the control of inventories and the shaping of production schedules. As the illustrations for this article suggest, it has already entered, tentatively, the field of design. It can, even now, do something more.

For the last ten years I have had a Williamson circuit in my radio amplifier. In its utilization of the power available, in its capacity for internal correction, it faithfully represents the elegant solutions to technical problems that occurred to the man who made it – Williamson. It stands as an admirable expression of his own peculiar understanding and intuitive skill – as an expression, in other words, of himself. Today new circuits for conventional amplifiers like mine can be and are designed by the computer. The special aptitudes, the distinctive bundle of intelligence and affections that Williamson brought to his work – the bundle that was in fact Williamson – has been displaced.

Computers as you know have other competences. They can discover proofs for theorems of logic; they can solve trigonometric identities; they can do formal integration and differentiation. They can already or have given clear indication that they will in the foreseeable future be able to do the following things: remember, learn, discern patterns in loose data, make novel combinations of old information and, most striking of all, introduce surprise into an intellectual situation. There is still a question about the limits of the computer's imagination – its ability to create something like a Newtonian hypothesis or to construct something like Handel's Water Music. But Herbert Simon, a cautious student of these matters has said that, "Insofar as we understand what processes are involved in human creativity – and we are beginning to have a very good understanding of them – none of the processes involved in human creativity appears to lie beyond the reach of computers."

The capacities I have described – remembering, learning, discerning patterns, making surprising combinations of data – are most if not all of the capacities men bring to most if not all industrial problems. If I am correct in saying this, then it must seem that sooner or later the machines will be able to take part in the thinking that goes on at every level of an industrial enterprise; that they will be in a position to influence decisions that will effect the ultimate policies and purposes that govern our industrial life. No less certainly than the civilization of an armed force is based upon its weapon system, is the civilization of our society based upon the instrumentation of the industrial process. All our economic and social arrangements – how we feel about what we do, which

is all that culture is — is founded upon the way our industrial energy is organized. How large a part and what kind of part do we want the computer — with its overriding skill in rational analysis of the measurable data — to take in the decisions that determine the way this energy will be organized? This is worth thinking about.

* * *

There are lots of ways to think about it. If you are a Sloan Fellow now you can wonder how soon this machine will invade the ranks of middle management, and if and when it will reach the level of the Senior Executive if and when you actually reach those levels. You can also, if you are me, wonder when you will be out of a job. Because of the cheap reproducibility of computer programs it will, it is said, become cheaper and easier to transfer new knowledge and skill to machines than to men. As a faculty member I'm not sure it will be cheaper, but as a pedagogue long steeped in the educational process — with its immense inefficiencies and wastes caused by the uncertainties and resistances of human beings — I am quite prepared to believe that it will be easier for computers to teach computers.

But matters like this — the temporary technological unemployment of the individual — like you, like me, like Williamson — are inconsequential when laid against what I would think was the primary source of concern about the machine. The computer is no better than its program — the quality of its decision is determined by what is put into it and men will decide what is put into it. This is a source of hope and delight in one way. It means that like the steam engine, the steel mill, the dynamo, it is an opportunity to be exploited, an immensely powerful extension of man's ingenuity and power in the service of his will. But it is also a source, I should think, of concern. If we put the wrong things in it. if we select the wrong problems or state the right problems incorrectly we will get unsatisfactory solutions. Perhaps the easiest way to put it is that in using the computer man will get the answers he deserves to get.

Here it seems to me is the cause for real alarm because of a sad historical fact. On the record men have been luckier in giving answers than in asking the right questions — or at least they have been more skillful in making up half answers they can live with than in putting the full questions accurately framed.

This is not said in the hope that it will sound like an epigram. Let me give some brief examples out of our own short history. In the Constitution of the United States as it was ratified it is indicated that for certain purposes a colored man counts as $\frac{3}{5}$ of a white man. In the 70's and 80's of the last century bimetalism was accepted as a solution to our monetary difficulties. Yesterday, today and apparently forever there is the legislation dealing with our farm problem.

These jerry-built solutions were arrived at in part because we did not care, for reasons of policy, expediency, ignorance or pure fright, to state the problems fully and accurately. Sometimes we did not assess the quantifiable data, as the weight of the silver bloc, correctly; sometimes we were not fully conscious of the load of memory, prejudice, hope, faith and so forth that had been dumped into the situation; and sometimes, indeed almost always, we did not make the effort to separate out the useful from the useless memory, the good from the evil prejudice, the legitimate faith from the illusion, in the problems presented.

In dealing with the computer, with its incisive capacity to reach clear decisions from the data presented, we will find ourselves in grave difficulties, I think, if we persist in such sloppy definitions of the problems we wish to solve. We will have, in the near future, to ask ourselves if we can assess even quantifiable data without distortion; we will have to consider painfully whether we are ready to lift out our raw affections for observation and analysis, whether we are honest enough and brave enough to make the necessary separations between the indispensable and the irrelevant feelings.

* * *

There is an alternative in all this that we ought at least to think about. We can begin from the proposition that man is because he thinks and only because he thinks. That is, we can disregard the existence of the affections and program only the quantifiable, measurable elements that can be dealt with by pure reason. Take, for instance, the antisubmarine problem as I have described it in 1943. Feed in the clean elements — radar capacities, fire powers, cruising ranges and so forth. Just the thing for a computer. Let us assume for the moment that a clean answer came back: use the land-based Army planes for search

and attack in the narrow waters of the Bay of Biscay. Let us then assume further that this sharing of control over operations and the introduction of the plane as a dominant weapon would undermine the naval society – altering not only its form but the structure of value and affection that held it together. This would mean that you had swapped cultural stability – determined in large part by the affections – for immediate operational success as prescribed by pure reason. When translated to the larger sphere of the industrial process and the cultural and social arrangements based upon it, the implications, I should think, are clear.

This is certainly one way to do it and it may be *the* way – or at least the way we will take. The history of man can be understood not only as the history of the affections but as the effort of man to use his distinctive instrument – the intelligence – to triumph over the affections, the effort to introduce logic and order into the control of affairs made messy by the affections. Then too, as is well known to all foreign observers, we are a pragmatic people living always for the operational success in the existing moment, unexcited by the past, unaware of any future beyond the next tomorrow which is only another day.

With such ideas in mind, and especially in an era of dynamic technological change, it may be argued that all the accumulated baggage of value and culture created by the affections is irrelevant or unnecessary. The thing to do is to reach logical conclusions in the immediate circumstance and bring such memories and affections as do exist into accommodating new alignments to fit the logical conclusions.

I want to take this proposition one step farther. Sigmund Freud had a theory that art is merely a neurotic compromise – an enormous effort by men to give imagined reality to desires they could not fulfill in action. It is possible that our affectionate attachments to particular schemes of value are equally symptoms of our incapacity to run an environment in a reasonable way. For instance in the 13th century a man petitioned Almighty God only, perhaps, because he thought he could control nature in no other way. Or a man in the 19th century made hard work, thrift, giving to the poor, and the sacredness of individual enterprise into a scheme of value because they were the only devices that enabled him to deal with an uncertain economy he could not run or understand by his reason alone.

If this view of things is accepted, and it has real pulling power for anybody attracted by economies of means, elegant solutions and nice analyses, then man can learn to live with the computer that feeds only on the quantifiable, measurable data and that yields up the correct operational decision for the moment. Detaching himself from familiar social, institutional and personal commitments he will be able to bring whatever affections he has into a continuous alignment with the ever changing decisions about what will work at this moment in the industrial process.

* * *

I think in the future we should look at this proposition with care, but I must say I don't like it much. It seems to rip man away from the qualities and contexts which in the past we have ordinarily presumed gave point and meaning to his life. It seems to turn him into an accommodating mechanism designed to force whatever fitful feelings he may have into grooves cut to a temporary pattern by the intellectual necessities of a situation. It sounds as though in the interests of survival we would be willing to survive as freemartins – dead to rapture and despair. Maybe I don't like this prospect simply because, as the anthropologists say, I am culture bound.

But I hope I am not misunderstood here. I believe, of course, that the intelligence is one of the determining things about man. I am with Whitehead when he said that today the rule is absolute, the society that does not value the trained intelligence will die. I also believe the computers are here to stay and it's no good trying to melt them down, as they tried to bust up the first power looms or to destroy the first Bessemer Converter built in this country. I further believe that the computers supply an opportunity to organize and enrich our society that is greater than the opportunity offered by any other agency perhaps since the discovery of fire – which also has the power to destroy. And finally, in this confession of faith, I believe that man is not only a creature distinguished by the intelligence but by the affections as well – which means I guess that he is a creature of rapture and despair. But which means also that the affections have an existence, an identity, a set of needs and claims, a shaping influence in the life of man that is their independent own. Man is, not only because he thinks but because he feels and it is the interaction between these two impressive energies that establish what people today love to call the human condition. This at least is one of the things I think I have learned from history. So I would add that in confronting the computer we must examine with care whether the rule is not equally absolute: the society that does not value the educated heart – or wherever the seat of the affections is – will also die.

Saying all this hardly simplifies the problem. The computer is no better than its program; the structure of the questions put to it is the determining thing. So what appears to lie before us in a rather distasteful phrase, is how – along with the quantifiable data – we can program the legitimate affections at work in a situation. If we can identify these affections and build them into the structure of the question we

want to ask, then we can put the computer to work in our own interest — we can make it a brilliant extension of our own natural capacities simply by asking it the right questions fully and accurately stated.

This means, I think, that we must soon get heavily into the business of finding out what our genuine affections and intentions are. We can not much longer resort to shrewd argument, or simple assertion, or name calling, or the power play to get our own way at the moment. We will have to find out first what our own way ought to be so we can frame the right questions. This means — in the end — finding out who we are — and, more painful yet — accepting it. Then we can program our emotional necessities and desires and even, I would suppose, our aspirations. In other words, we can write satisfying programs for the computers when, and only when, we have learned to write satisfying programs for ourselves.

* * *

How do we get the information we need and how do we make it explicit? This is not the place where you will get the final answer to the problem that has puzzled people since the beginning of recorded time. But some observations at least may be tentatively offered. Some of the information we need, some of the methods required to obtain further information are already available in the formal educational process. There is, to begin with, the old-fashioned source — the study of Humanities. Historically they have been an inefficient instrument, but they have always been and may remain as Sigmund Freud said of women, "the best thing of their kind that we have." But I think we might spend more time now trying to figure out ways to increase their educative power. They serve too often as mere diversions or as objects for critical analysis. They should be approached in such a way that a student may be stirred by them — in such a way that he recovers his power, now almost lost, to be really moved. The surest way to discover the existence and then to examine the meaning of the affections is first to feel them.

And then there are the newer means that give some promise — the social sciences like psychology, cultural anthropology and the rest. They are still young and tangled up with too many long words and far too much unorganized data. But they are today the most systematic methods we possess for analyzing the structure of the personality and for charting the course of the affections.

What the ultimate relation between the humanities and the social sciences will be I certainly don't know. I would hope that they would fortify each other — interact. I could make a case, for instance, that one could feel the full impact of Hamlet only after one had acquired an intellectual grasp of the structure of personality, the pattern of disturbed affections, so that one could recognize consciously what Shakespeare knew unconsciously.

One more thing about the uses of education here. It seems to me that we have reached a point of complication and sophistication in our culture where the things I have been talking about — the development of the instruments of industrial organization and our emotional and intellectual responses to them — cannot be learned once and for all in high school, college, graduate school, one Sloan year or ten weeks in a Senior Executive Development Program. To live safely in our society — let alone manage it — will require a continuous education until a man dies. It is steadily necessary to learn more about the changing environment, about the novel instruments we are putting into it and about ourselves as members of it. But education in the formal sense is not and never has been enough. We will need further incentive and means if we are to deal with our endeavor — which is to use the machine wisely by finding out who we are and abiding by what we find.

The preliminary incentive and strangely enough perhaps one powerful means lies in the computer itself. It is designed to give answers and to render decisions, but by its very presence and nature it puts the essential question, defines the central problem. Because it works only by simulation, it asks, it cannot avoid asking of its maker, what is the nature of man. This is the oldest question. Put forward in the past, as a matter of philosophic speculation, it has been possible to avoid the full consequences of insufficient answers offered by honorable men or of false answers supplied in cunning passages by fools and knaves.

But the machine which simulates will take our replies today to use in immediate and practical applications. If we withhold a full answer to the question it poses, we evade or equivocate at our own immediate peril. So the computer by its practical consequences can force man, for the first time, to raise up and examine his being (the being that must be, as they say, "programmed"), to face not only what he is but what he is doing, why he is doing it and what he wants to do.

If history means anything we will try to spare ourselves the pain of this investigation; we will, at times, get caught in traps sprung for us by fear or the pure intelligence. No doubt we are in for a dangerous time with an uncertain outcome. But there would seem to be no immovable obstacle to success. As I said earlier, much of our past difficulty has come because the problems have not always been well defined. It should now be added that men have demonstrated impressive abilities to solve problems once the definitions have been reached. They have revealed fortitude in awaiting outcomes, intellectual enterprise in the selection and combination of data drawn from schooling and experience, imagination in supplying new values for unknowns in the equations set, continuing concern for what is lovely as well as for what will work.

The computer has stated the problem crudely. What is left is to refine the definition and to solve the problem. To the dangerous work of solving it there is no reason to believe we will not bring the same qualities we have possessed in the past. Since the machine can only simulate, the work of creating the future is still in man's hands. If he fails, if he misuses the machine, then in simulation it will misuse him in exactly the same way. Then, in terms of what we ever thought we could be or hoped to be, we would have had it. If we succeed we will have acquired an incredible extension of the power of ourselves, our real selves.

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Individuals Noteworthy

(Continued from page 10)

In New Positions

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Warren A. Gentner, '13, President, New England Water Works Association . . . *David W. Skinner, '23,* Vice-president, Harvard Trust Company . . . *Charles S. Keevil, '23,* specialist in placement of scientific and engineering personnel, Helen Edwards and Staff Agency, Los Angeles;

Thomas E. Stanton, '27, Water Commissioner, City of Cleveland . . . *Richard M. Wilson, '30,* Manager, Film Manufacturing, Kodak Park Works, Rochester . . . *Raymond C. Binder, '30,* Staff, Washington State Institute of Technology . . . *Thomas B. Rhines, '32,* Assistant Engineering Manager, Hamilton Standard Division, United Aircraft Corporation;

Jacob J. Jaeger, '35, President, Pratt & Whitney Company . . . *Joseph M. Colby, '35,* Vice-president, Engineering, Rockwell Manufacturing Company . . . *William F. Whitmore, '38,* Consultant Scientist, Lockheed Missiles and Space Division . . . *Andrew C. Bayle, '40,* Vice-president, Engineering, Waltham Precision Instrument Company . . . *Clark Goodman, '40,* Vice-president for Techniques, Schlumberger, Ltd.;

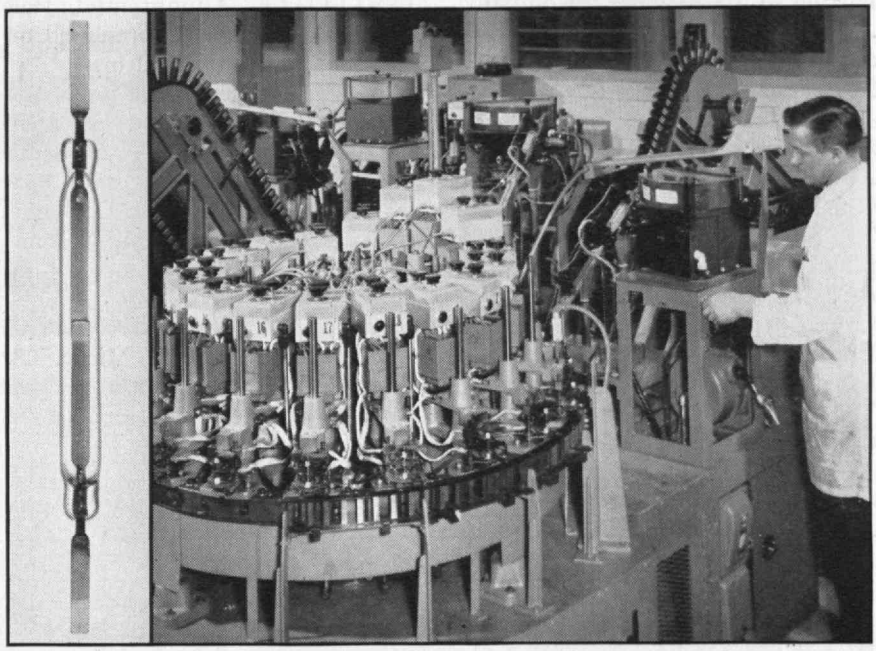
Curtis D. Buford, '42, Vice-president, Operations and Maintenance, Association of American Railroads . . . *Lothrop M. Forbush, '42,* Engineer, Vehicle Development Group, General Motors Engineering Staff . . . *David B. Nichinson, '42,* Vice-president, Engineering, Kollsman Instrument Corporation . . . *Edward O. Vetter, '42,* Vice-president, Texas Instruments, Inc.;

Frank E. French, Jr., '43, Manager, New Product and Market Development, Du Pont Freon Division . . . *Robert B. Handelman, '43,* General Manager, Systems Division, Kearfott Company, Inc. . . . *Hamilton Herman, '43,* Vice-president, American Machine and Foundry Company . . . *John W. Hoopes, '44,* Director, Chemical Engineering Department, Atlas Powder Company Chemicals Division;

(Continued on page 38)

BELL SYSTEM TEAMWORK IS A VITAL FACTOR IN EFFICIENT, ECONOMICAL TELEPHONE SERVICE

Direct Distance Dialing is an example of the value of unified research, manufacture and operations



EXAMPLE OF TEAMWORK. At left is new fast-moving switch (actual size) used in Direct Distance Dialing. Many of them go into action automatically every time you dial. Enclosed in gas-filled glass tubes to assure perfect contacts. Made to last 40 years. The result of Bell Telephone Laboratories and Western Electric working together to get the best and most economical design. At right is remarkable new machine, designed by Western Electric, which automatically assembles 360 switches an hour at a very small cost.

There are great advantages to the public and the nation in the way the Bell System is set up to provide telephone service. It is a very simple form of organization, with four essential parts.

Bell Telephone Laboratories does the research.

The Western Electric Company is the Bell System unit which does manufacturing, handles supply, and installs central office equipment.

Twenty-one Bell Telephone operating companies provide service within their respective territories.

The American Telephone and Telegraph Company co-ordinates the whole enterprise and furnishes nationwide service over Long Distance lines.

Each is experienced and efficient in its own field. But the particular value of each is greatly extended because all four parts are in one organization and work together as a team.

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Already more than 8,000,000 telephone customers in more than 700 localities can dial direct to as many as 46,000,000 telephones throughout the country. Each month there are more. Millions of others can dial direct over shorter out-of-town distances. Calls as far as 3000 miles away go through in seconds.

All of this didn't just happen. It called for years of intensive planning, the invention of wholly new machines and equipment, and the development of new operating and accounting techniques.

Research alone couldn't have done it. Neither manufacturing nor operations separately could have done it. And just money couldn't have done it, although it takes money and a lot of it for telephone improvement.

The simple truth is that it could never have been done so quickly and so economically without the unified setup of the Bell System.

For many a year it has given dynamic drive and direction to the business and provided the most and the best telephone service in the world.

BELL TELEPHONE SYSTEM

Individuals Noteworthy

(Continued from page 36)

Carroll J. Brown, '46, Executive Development Adviser, Standard-Vacuum Oil Company . . . *Clifford C. Woods, Jr., '46,* Assistant Vice-president, First National City Bank of New York . . . *Neil M. Blair, '47,* Vice-president, Intelex Systems, Inc., a subsidiary of International Telephone and Telegraph Corporation . . . *Kenneth L. Block, '47,* Partner, A. T. Kearney & Company . . . *Walter R. Derlacki, '47,* Assistant Research Director, Luria Bros. & Co., Inc.;

Van T. Boughton, Jr., '49, Manager, Cambridge plant, Dewey and Almy Chemical Division, W. R. Grace & Co. . . . *Donald J. Atwood, '48,* Associate Director, AC Sparkplug Research Laboratory . . . *Frederic A. Foss, '48,* Manager, Advanced System Research, Owego Facility of IBM Federal Systems Division . . . *Robert L. Sandman, '48,* President, New England Chapter, National Industrial Service Association . . . *Osmund T. Fundingsland, '50,* Director of Research, Raytheon Company . . . *Lawrence Gould, '50,* Manager, Tube Operations, Microwave Associates, Inc. . . . *William H. Ramsey, '51,* Secretary-treasurer, Boston Chapter, Professional Group on Aeronautical and Navigational Electronics, Institute of Radio Engineers . . . *William H. Feathers, '52,* President, National Carbon Company.

Recent Publications

INSTITUTE Alumni and staff members have been represented on the book marts this fall in:

Advances in Semiconductor Science, Proceedings of the Third International Conference on Semiconductors, in Rochester, in 1958, with contributions by J. C. Slater, Institute Professor at M.I.T., and Benjamin Lax, '49, of Lincoln Laboratory.

Factors in Special Fire Risk Analysis, by William D. Milne, '08. Priced at $10, by the Chilton Company, 5605 Chestnut Street, Philadelphia 39, Pa.

Fire Control Principles, by Walter Wrigley, '34, Professor of Aeronautical Engineering and John Hovorka, of the M.I.T. Instrumentation Laboratory. With 133 pages, it is priced at $10 by McGraw-Hill Book Company, Incorporated, 330 West 42nd Street, New York 36.

Molecular Science and Molecular Engineering, edited by Arthur R. von Hippel, Professor of Electrophysics. This completes a trilogy on modern materials research, contains 446 pages, and is priced at $18.50 by The Technology Press of M.I.T. and John Wiley & Sons, Incorporated, New York.

Property Measurements at High Temperatures: Factors Affecting and Methods of Measuring Material Properties at Temperatures Above 1400 degrees C, by W. D. Kingery, '48, Associate Professor of Ceramics, M.I.T. With 416 pages, it is priced at $16.50 by John Wiley & Sons, Incorporated 440 Fourth Avenue, New York 16.

Sampling Inspection Tables: Single and Double Sampling, by Harold F. Dodge, '16, and Harry G. Romig. This is a second edition of

(Concluded on page 40)

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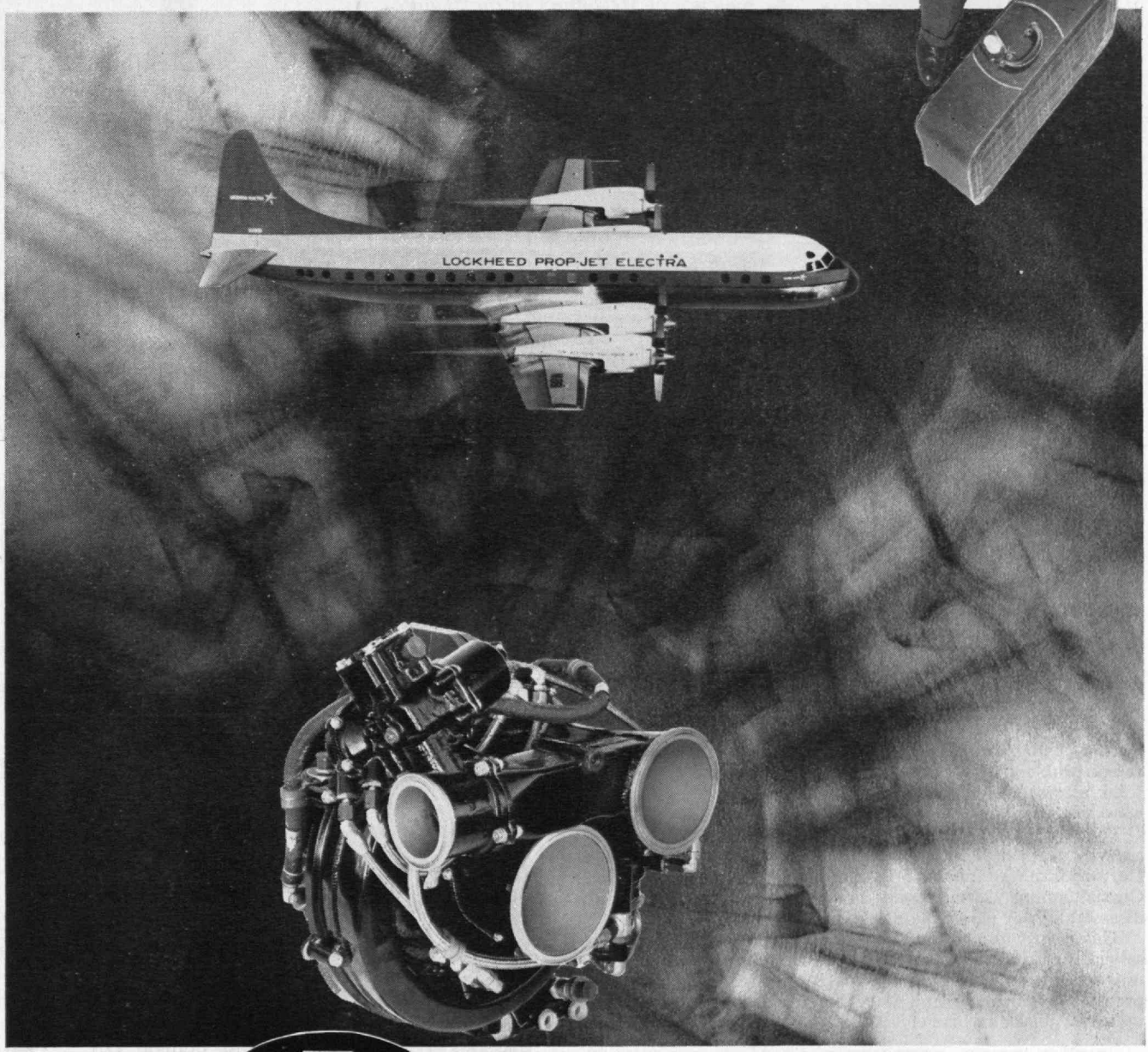

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Individuals Noteworthy

(Concluded from page 38)

a best-seller in its field; it has 224 pages, 8½-by-11 inches in size, and is priced at $4, by John Wiley & Sons, Incorporated, 440 Fourth Avenue, New York 16.

Structural Design for Dynamic Loads, by Charles H. Norris, '31, Robert J. Hansen '48, Myle J. Holley, Jr., '39, John M. Biggs, '41, Saul Namyet, '40, and John K. Minami, '31. Dr. Hansen and Dr. Holley are Professors of Structural Engineering, Dr. Biggs is an Associate Professor and Dr. Namyet is an Assistant Professor at M.I.T. The 453-page book is priced at $12.50, by McGraw-Hill Book Company, 330 West 42nd Street, New York 36.

The Dynamics and Thermodynamics of Compressible Fluid Flow, by Ascher H. Shapiro, '38, Professor of Mechanical Engineering at M.I.T. The first eight chapters of the author's two-volume work have been separately bound; with 119 illustrations and tables, and 294 pages, this has been priced at $8.50, by the Ronald Press Company, 15 East 26th Street, New York 10.

The Teaching of Human Relations (by the Case Demonstration Method) by F. Alexander Magoun, '18, with a foreword by Vannevar Bush, '16. This 169-page book is priced at $4.50 by Beacon Press, Beacon Hill, Boston.

Critical Problems in the History of Science, edited by Marshall Clagett, contains 16 major papers including one by Giorgio de Santillana, Professor of the History and Philosophy of Science at M.I.T. It is a companion volume to *The Science of Mechanics in the Middle Ages.* Priced at $5, it was published by the University of Wisconsin Press.

Visitors Nominated

NOMINEES for Alumni Membership on Departmental Visiting Committees whose names have been submitted to the M.I.T. Corporation are:

William M. Mills, '34, Civil and Sanitary Engineering; *William J. McCune, Jr., '37,* and *Thomas F. Morrow, '35,* Mechanical Engineering; *Wilfred D. J. MacDonnell, '34,* Metallurgy; *Bissell Alderman, '35,* Architecture; *Harold S. Osborne, '08,* Regional and City Planning; *Frederick W. Adams, '21,* Chemistry; *Bennett Archambault, '32,* Electrical Engineering;

Robert L. Sinsheimer, '41, Biology; *Herman A. Affel, Jr., '41,* Physics; *Frederic A. L. Holloway, '39,* Chemical Engineering; *Douglas C. MacMillan, '34,* Naval Architecture and Marine Engineering; *Robert L. Moore, '21,* Economics and Social Science; *Laurence L. Waite, '29,* Aeronautics and Astronautics; *Ivan A. Getting, '33,* Mathematics;

Robert P. Joslin, '53, Food Technology; *Joseph L. Gillson, '21,* and *Joseph S. Bowman, '41,* Earth Sciences; *Abbott L. Johnson, 2d, '22,* Humanities; *Edgar B. Taft, '38,* Medical; *Nathaniel Rochester, '41,* Modern Languages; *William C. Foster, '18,* and *Elisha Gray, '28,* Sponsored Research; *Gilbert W. King, '33,* Library; *Richard L. Cheney, '27, Pierre S. du Pont, 3d, '33,* and *Thomas F. Creamer, '40,* Student Activity; *Semon E. Knudsen, '36,* and *Wayne J. Holman, Jr., '39,* School of Industrial Management.

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up and down constantly. Even slight variations can mean serious dollar losses to an importer buying on foreign currency terms — unless his dollar costs are *fixed*. That's another of the many ways in which our Foreign Department can help you reduce the risks of trading abroad — by fixing dollar costs.

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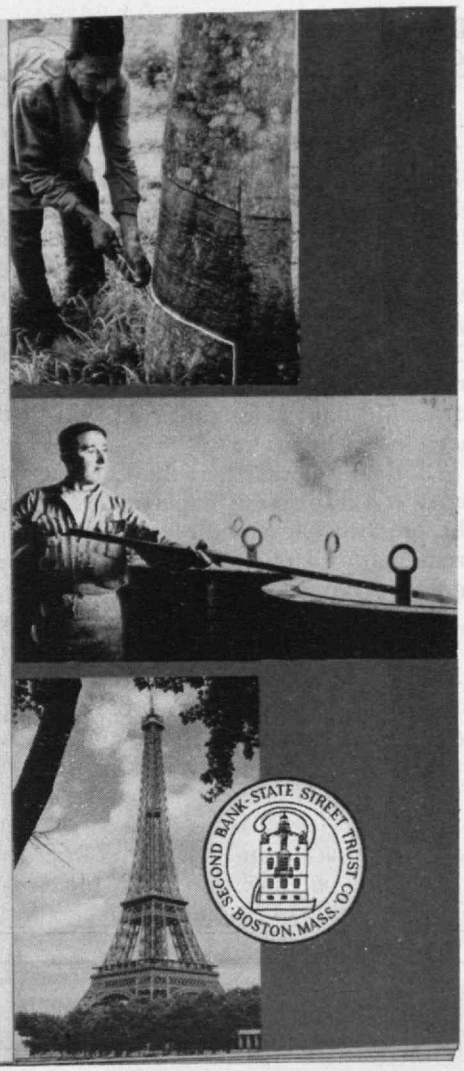

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Case Institute's Plans

SEVERAL M.I.T. Alumni who are now on the staffs of other schools will help implement the Ford Foundation's program to improve engineering education.

At Case Institute of Technology, for example, John A. Hrones, '34, Vice-president for Academic Affairs, will help launch a Systems Research Center and an Engineering Design Laboratory with funds granted by the foundation, and James B. Reswick, '43, Professor of Mechanical Engineering, will be director of the new design laboratory.

"Both the Center and the Laboratory will be based outside our existing departments," Dr. Hrones told the press in Cleveland, "yet will bring together men from many of our scientific and engineering departments for an interdisciplinary approach. . . .

"The Engineering Design Laboratory will provide a unique educational center in which students will be given the opportunity to solve the kind of problems met by the engineer in his professional practice. They will begin with a new idea and see it through the entire process of design and construction . . .

"The Systems Research Center will allow Case to make use of the talents of the entire faculty in setting up the first academically based center in the new field of systems engineering. This field is involved in projects as diverse as guided missiles and the organization of supermarkets."

Galloping Power Lines

AN ENERGY STATE called galloping is not confined to TV westerns. In the real world there is a more unsettling variety, to the elimination of which an M.I.T. project is now dedicated.

For many years power companies have been troubled by galloping transmission lines. During snow and sleet storms, the lines become coated with ice on the windward side and thus acquire an unsymmetrical shape which, in high winds, causes them to flap back and forth in periodic motions that may reach many feet in amplitude. The ensuing short circuits and damage to terminal connections have cost millions of dollars. These misfortunes are singularly rampant on the plains, where the flat open areas permit generation of constant and high air velocities over spans of several miles.

Efforts to solve the problem have been unsatisfactory to date, and 10 power companies have come to M.I.T. with a substantial grant for research into the matter. Albert S. Richardson, Jr., '47, executive officer of the Aerolastic Research Laboratory, will direct studies aimed at achieving fundamental understanding of the conditions.

Experiments will be carried out in the M.I.T. flutter wind tunnel, which produces velocities in the range from 10 to 100 miles per hour. Although there is some similarity to aircraft flutter problems, the work on power cables ventures into a relatively unexplored region of aerodynamic phenomena.

(*Continued on page 44*)

Pres Adams saw our ad...

Men have joined New England Life after starting careers (often with considerable success) in a number of different fields. Sometimes, as in the case of Preston Adams, they come to us from other life insurance companies.

Pres had long felt he wasn't moving ahead as well as he should. He was even considering other kinds of employment. About that time he saw an ad telling about our Leaders Association. The fact that so many New England Life agents were meeting the high standards of qualification for this organization was an eye-opener. Pres knew how success has a way of generating more success. This was the kind of atmosphere in which he wanted to work.

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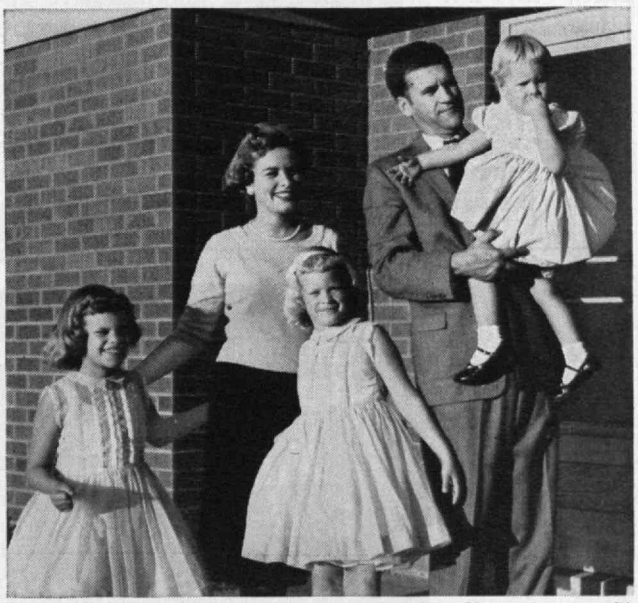
For more information, write to Vice President L. M. Huppeler, 501 Boylston Street, Boston 17, Massachusetts.



Preston G. Adams, holding his youngest daughter Sharon, poses with Linda, Mrs. Adams, and Susan in front of their home in Salt Lake City.

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Ask one of these competent men to tell you about the advantages of insuring in the New England Life.

The Meteoric Gun

AN UNUSUAL rifle range has been set up at M.I.T. to investigate what will happen when a meteorite hits a spaceship. The single gun used on this range can fire a projectile about three times faster than the fastest ordinary rifle bullets. It is a specially made, smoothbore, .243-caliber Winchester, and it sends a BB-size lead bullet through a pipe to hit a lead target 20 feet away.

Professor Raymond L. Bisplinghoff of the Department of Aeronautics and Astronautics directs the aeroelastics and structures laboratory where this shooting is done, and Walter Herrmann, a senior engineer, is in charge of the project. Working with him are two graduate students, Arnold E. Olshaker of Brooklyn and Arfon H. Jones of Llangennech, Wales, who are preparing theses concerning impact and wave propagation.

"For the past three months we have been operating our range to determine the effect of meteorite impacts," says Dr. Herrmann. "The findings have application more in the true space vehicle of the future than with the relatively small satellites now in orbit. A man-carrying space vehicle on a trip to Mars, for example, probably would be penetrated five or six times by meteorites large enough to do damage. It is necessary that some sort of protection be devised for at least the sensitive areas on a space vehicle — such as the manned compartment, guidance system, and power plant. Until better power plants are developed, space vehicles will have thin skins of metal, to save weight, so it is obvious that if meteorites are to be encountered, we must make sure the skin is not penetrated beyond the danger point."

The cartridges used in the meteoric gun have the lead projectile embedded in a plastic shoe, which keeps it from hitting the sides of the gun barrel, and its velocity is measured electrically. In most of the experiments, it has reached about 7,000 feet per second, and occasionally as high as 10,000 feet per second. Nevertheless, a shield about 1/30,000th of an inch thick can dissipate the penetrating power of one of these projectiles when it is placed about half an inch from the target.

Although the laboratory gun does not produce the velocity of a meteorite, calculations indicate that the speeds attained with it will produce the same results on a lead target that a true meteorite would on the thinner alloys currently being considered for use in space vehicles.

"So far in our experiments," says Dr. Herrmann, "we have reached the conclusion that for certain areas on a space vehicle, a double-skin will furnish a very promising means of protection. Now we are searching for the correct thickness of the protective plating, and also the correct distance to place it from the surface of the vehicle itself."

As more data are acquired, the researchers expect to make use of a large computer in this search.

(Concluded on page 46)

Trend of Affairs

(Concluded from page 44)

The Alumni Council Meets

AT THIS academic year's first meeting of the M.I.T. Alumni Council, Gordon S. Brown, '31, Dean of the School of Engineering, and John B. Wilbur, '26, Head of the Department of Civil and Sanitary Engineering, entertained 173 members and guests with an account of their tour last summer of the DEW Line. In one week, they had covered 10,000 miles, visited 10 air bases, three DEW installations, and two BMEWS (Ballistic Missile Early Warning System) stations. Both were impressed by the ruggedness of the environment, and both spoke highly of the engineering achievements. Dr. Wilbur spoke first, emphasizing the distances and the civil engineering difficulties, and Dean Brown showed colored pictures he had taken and spoke of the sophistication of the electronic work.

Edward J. Hanley, '24, presided at this meeting, which was held on October 26 in the M.I.T. Faculty Club, and a report was given by Donald P. Severance, '38, Secretary, which showed:

¶ The Association's budget for 1958-1959. was $94,915, and total disbursements were $94,082. The unexpended balance of $833 is being returned to the Alumni Fund.

¶ The net profit, turned back to the Alumni Association, on Volume 61 of The Technology Review was $18,528, compared to $12,985 the previous year.

¶ Dr. Egon E. Kattwinkel, '23, has been elected to fill the two-year term on the Executive Committee of Henry B. Backenstoss, '34, who has moved temporarily to Beirut, Lebanon.

¶ Percy R. Ziegler, '00, has been elected to fill the vacancy on the Committee on Honorary Members left by the death of Bernard E. Proctor, '23.

¶ Chairman and Deputy Chairman, respectively, of the 1960 Alumni Day Committee will be Philip H. Peters, '37, and Albert O. Wilson, Jr., '38; and the following have been nominated as subcommittee chairmen: Mr. Wilson, Banquet and Evening Entertainment; Wolcott A. Hokanson, Registration; Robert C. Dean, '26, Symposium; and John L. Danforth, '40, Luncheon.

Edwin D. Ryer, '20, chairman of the Alumni Fund Board, reported that last year was the most successful in the Fund's history. "For the first time," he said, "we exceeded 15,000 contributors and passed the $500,000 mark. These were milestones in making annual giving a true expression of alumni feelings toward the Institute. To all who contributed and to all who also gave of their time goes the sincere appreciation of the Fund Board and M.I.T."

In accordance with a change in the Association by-laws, terms of the following six alumni members on the Alumni Fund Board have been established and will expire as noted below:

In 1960 — Whitworth Ferguson, '22, and D. Reid Weedon, Jr., '41; in 1961 — Avery H. Stanton, '25, and John J. Wilson, '29; in 1962 — Edwin D. Ryer, '20, and Dwight C. Arnold, '27.

A resolution occasioned by the death of Henry F. McKenna, '25, was read by Frederick W. Greer, '25.

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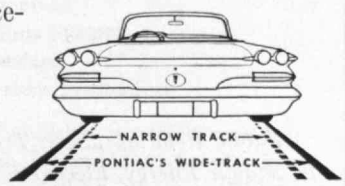

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The Engineering of Science

(Continued from page 22)

5) Fellowships and loans will be made available to graduate students, from industry as well as colleges, who wish to work toward the doctor's degree in engineering with the expectation of becoming professors; $150,000 is available for these.

6) The education of promising young members of the Faculty will be extended by bringing distinguished engineers to M.I.T. as visiting professors, exchanging professors with other colleges, and conducting conferences on educational problems; for faculty development in such ways, $125,000 has been provided.

In short, about half of the Ford Foundation's grant is intended to be used to strengthen teaching. The rest will support efforts to evolve new course sequences and laboratory procedures.

The Core Curricula

Many of the men now teaching engineering obtained their basic education before the war. Discoveries and developments since then in solid-state and molecular physics, the quantum theory of matter, spectroscopy, magnetohydrodynamics, and in computers, operational analysis, jet propulsion, and so on, have made it difficult to keep up with changes in one's field while carrying a substantial teaching load. The good teacher, moreover, should also be sensitive to developments in adjacent fields. Additions to the faculties can both help relieve senior teachers and improve the work of junior teachers in many ways.

Such interdisciplinary centers as the Insulation Research Laboratory, the Research Laboratory of Electronics, the Laboratory for Nuclear Science and the Communication Sciences Center have helped bridge the gaps between traditional disciplines at M.I.T.; more such centers are needed, and will be established. These centers, which are in essence federations of scholars, also can be helpful in creating the fresh syntheses in interdisciplinary core curricula that are contemplated now for undergradutes in the School of Engineering.

The specific areas that these core curricula will embrace are currently live topics of discussion as the Faculty looks imaginatively to the horizons of the next decade or two. They may follow such themes as:

Materials — Engineers are increasingly concerned now with the ways in which atoms and molecules can be manipulated and engineered to produce new substances and devices. The transistor is an outstanding example of a momentous engineering application of the exploitation of fresh scientific understanding. Throughout all engineering, new and improved materials are urgently needed, yet few schools are giving their students the competence they will need to become leaders in what eventually may become a wholly new field called molecular engineering.

Energy Processing — For a long time man has been mining coal to obtain power. The coal is shipped to a power plant, where it is converted into heat, which is converted into steam, which turns turbines, which turn dynamos, which generate electricity, which is sent through wires to consumers. Must the process

be so ponderous and inefficient? Science has uncovered many new possibilities for processing energy to produce electricity and to produce work in a multitude of new ways. Engineers are needed who can devise simple, economical, feasible processes.

Information processing, propulsion, and *environment engineering* are other possible themes for core curricula. There has been much interplay between departments within the Institute's schools, and between the schools, too, in the past which will prove helpful as we seek fresh snytheses in such curricula, not only with respect to science, but also with respect to the resources of the whole of M.I.T.

Achievement of these aims will involve a major reorganization of the educational work and the organizational structure in our School of Engineering. The undergraduate programs will gradually acquire more of a common status for all lines of engineering. As this lessens the specific professional aims of the present departments in the undergraduate years, the departments' roles in the graduate study and research domains must be correspondingly strengthened.

Time Is a Factor

At an electrical engineering curriculum workshop here two years ago, Chairman James R. Killian, Jr., '26, of the M.I.T. Corporation, said: "Many of us feel intuitively that we may be on the verge of an advance in professional engineering education not unlike the advance in medical education which followed the Flexner report and the revivification of legal education that followed the innovations of Langdell."

It already is launched. New textbooks, new laboratory devices such as the generalized machine, and other innovations in the Department of Electrical Engineering have so changed its whole educational program that a man who was graduated a decade or more ago now would find it quite strange. Other departments, too, have striven – each in its own way – to adapt themselves to new conditions, and many excellent results have been obtained. But much more must be done, and done quickly. We must accomplish in the next five years or so as much as has been accomplished by slow evolution in the last 50 years.

Our school must do more than keep up with the swift pace of technology. We must produce engineers so versatile, and so well equipped to exploit science, that they themselves can be the instigators of greater changes than history has recorded heretofore. We must educate engineers who, by their ability, can shape modern scientific knowledge into useful new forms – the revolutionists in tomorrow's revolution in technology.

Recommended Reading Elsewhere

TO the November issue of *Scientific American,* Bruno Rossi, Professor of Physics, contributed an article on "High-Energy Cosmic Rays." . . . For the October issue of *Physics Today,* M. Stanley Livingston, Professor of Physics, wrote the first part of a "History of the Cyclotron." . . . In the October 10 issue of *The Harvard Alumni Bulletin,* Malcolm D. Rivkin, '56, Planning Officer at M.I.T., wrote about the Youth Festival in Vienna last summer which he attended with others from the Cambridge area.

Talk of Our Times

Can We Afford Beauty?

Edward D. Stone, '27, in an address to the American Institute of Architects in New Orleans this year, said in part:

AS WE VIEW our cities, towns, villages and our countryside, I am afraid we must acknowledge that we are a people who have not yet learned to appreciate beauty.

Henry Ford did not realize that his invention would render a whole continent's plan obsolete. Nor did Claude Neon think that his simple lighting device would doom the beauty of the world's greatest avenue, the Champs Elysées in his native Paris, or Canal Street, the great thoroughfare of this city.

The automobile, the neon sign, the atomic pile, are all lethal unless controlled. We all know that grass should grow on Main Street and that it should be a pedestrian oasis with parking around the perimeter. This principle applies with equal force to large cities. We idealize the Piazza San Marco—a market place and civic center for pedestrians and free of motor traffic. Why can't we guide the city father in the creation of many such poetic situations in our metropolitan areas? . . .

Modern architecture is in its adolescence and currently is happily diverse and with many enthusiasms.

To some, redwood is God's greatest gift to man.

To others, plate glass holds the place today that Pentelic marble held in the time of the Greeks.

The plastic possibilities of concrete enable others to build great blimp-like structures.

Steel in tension holds another architect's world together. All of these points of view are healthy and enrich our basic vocabulary. . . .

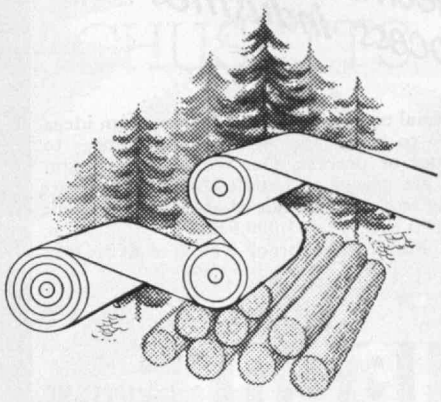
We mustn't be creatures of fashion and duplicate one another's work, washing out our creative birthright. Architecture idealistically is permanent and should find its inspiration in the accumulated experience of history, if it is to be an ageless art. . . .

Since the horseless carriage is largely responsible for all of our troubles and we are a country that eulogizes free enterprise, why hasn't it occurred to our great oil and automobile industries to try to resolve some of the problems they have created. Why can't they be shamed into planning studies of our countryside, our villages, our towns, and our cities? To these great corporations the financing of such studies would be peanuts. . . .

Our government must be made aware of its responsibility. To accomplish this we need a cabinet official, corresponding to the Secretary of Agriculture, with outposts in every state and architects and planners to guide communities, just as the state and county agents have educated the farmer. . . .

If programs such as these were inaugurated, our profession would begin to fulfill its destiny.

PATHFINDER



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Institute Yesteryears

25 Years Ago . . .

UNDER the heading "50,000 Subtractions a Minute," The Review for December, 1934, reported that the Institute's three-year old Spectroscopy Laboratory, directed by Professor George R. Harrison, was "housing an elaborate program of investigations on the structure of matter as determined from the light emitted by atoms and molecules . . . made possible largely because [of its] concave grating spectrograph of 35-foot radius of curvature, [which] has been said by visiting spectroscopists to contain the most powerful diffraction grating ever made.

"A short time after the first successful spectrum photographs were made with this instrument the laboratory staff found that with it one man, by working two or three hours, could take a sufficient number of spectrograms 40-feet long, each containing thousands of lines, to keep several men busy for six months or more measuring, computing, and tabulating the results. It soon became evident that to make the best use of the unusual equipment available unusual methods of carrying out these processes must be devised.

"To meet this need, two entirely new instruments have been designed and constructed: one, still under development yet almost constantly in use, is a machine for measuring the wave lengths of spectrum lines directly from the spectrum photographs and for making all necessary computations automatically; the other, which is complete and has been in operation for more than a year, is known as an 'interval sorter,' and is designed to determine the energy levels of atoms or molecules from the spectrum lines they emit."

¶ On December 6, 1934, the Institute mourned the passing of Allan Winter Rowe, '01, Secretary of his

(*Concluded on page 54*)

Institute Yesteryears

(Concluded from page 52)

class for 13 years, member of the Advisory Council on Athletics for 23 years, member of the Alumni Council for 24 years, in 1932-1933 the 39th President of the Alumni Association, and since 1933 an Alumni Term Member of the Institute Corporation.

50 Years Ago . . .

IN his first Annual Report as the sixth President of the Institute, Richard C. Maclaurin, made reference to the large amount of important research being carried on by members of the Faculty in addition to their teaching duties. This, he believed, was "the very breath of life in a scientific school. The Institute has been particularly fortunate in having on its Faculty men who recognize this thoroughly, and it is not a little remarkable that many of the most important contributions to pure science that have been made within recent years in America have been made by graduates of the Institute of Technology, which on its scientific side is popularly, although of course quite erroneously, supposed to be almost exclusively a school of applied science."

In concluding his report, Dr. Maclaurin said he realized "that most of the Institute's difficulties are due to its success and not to its failures, and I believe that a splendid future is assured to it, if at this critical stage of its history it does not falter through lack of courage. It seems to me that when the opportunity arises it should sell that part of its property which is unrestricted [and] with the proceeds secure a new site."

75 Years Ago . . .

FRANCIS AMASA WALKER,* the third President of the Institute, in December, 1884, commenced his Annual Report on an optimistic note. "The last school year," he wrote, "has witnessed the full maintenance, and even an acceleration, of the remarkable rate of increase in the number of students attending the Institute of Technology, which has characterized the era of comparative prosperity which began in 1880. . . . We find the number of students in the School of Industrial Science to be 579, against 433 last year; making an increase of 136, or 31 per cent. . . .

"Large additional endowments are needed . . . as a reserve against hard times, against the occurrence of financial disaster, and even against the possibilities of temporary internal mismanagement. It is a perilous position for an educational institution that it should depend so largely upon tuition fees as to draw one-half of its revenue from this source. Yet five-sixths of the income of the Institute of Technology will be thus derived during the current year."

100 Years Ago . . .

ON December 7, 1859, William Barton Rogers was being congratulated upon the occasion of his 55th birthday.

*President Walker had taken office October 1, 1881, with a salary of $5,000 per annum.

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Robert E. Smith '41, Vice President

and the prophet replied:
*"It is well to give when asked, but it is better to give unasked, through understanding."**

Gifts by Will

TO THE
Massachusetts Institute of Technology

The tale is told of Almustafa, the prophet, who, having awaited for many years the ship that would return him to the place from whence he came, was making the final descent to the shore when the folk of Orphalese crowded about him. They besought him before departing to "disclose us to ourselves, and tell us all that has been shown you of that which is between birth and death."

With words of wisdom, an answer appropriate was given to the woman holding a baby, to the ploughman, to the merchant. Begged one, "Speak to us of GIVING," and the prophet replied:

> "It is well to give when asked, but it is better to give unasked, through understanding;
> And to the open-handed the search for one who shall receive is joy greater than giving. All you have shall some day be given;
> Therefore give now, that the season of giving may be yours and not your inheritors'."

Through the years the prophet's words have held true, for even today he who "through understanding" includes the MASSACHUSETTS INSTITUTE OF TECHNOLOGY as a beneficiary in his will can experience thereby a two-fold satisfaction. The successful culmination of his search for a worthy recipient and the anticipated results his generosity will assist in accomplishing. These satisfactions give an added value to the span of man's days and project his usefulness to his fellowmen far into the future.

The Massachusetts Institute of Technology because of the high quality of the education given its students, its effective research work for aiding America in peace as well as in war, and the high character of its governing body and academic staff qualifies as an institution for serving our American ideals for the present and in the years to come.

But the search, the finding, and the anticipated accomplishments are not enough; for without the properly-worded record, man's plans for the future may go awry. Hence the prophet's importuning, "— give now," should be heeded. The giving need not be an immediate physical transaction, for written directions replace the spoken word when the speaker is no longer present, and a donor can frequently make by will a gift which is larger than he can make while living. Truly, *"it is well to give when asked, but it is better to give unasked, through understanding."*

A booklet "Gifts by Will," outlining different forms of bequests to M.I.T., is available to you or to your attorney by writing to:

Director of Development
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

* "The Prophet" by Kahlil Gibran

Club Notes

Garner's Rocket Talk Launches N. Y. C. Season

Activities are in full swing now. The Long Island section launched the season with a talk on ICBM rockets, by Captain Garner, Executive Officer, Air Force Ballistic Missile Division, Cape Canaveral. The meeting included a dramatic film, "On Target — The Atlas ICBM." Ralph Krenkel'46 and Ted Henning'46 did an outstanding job in organizing the meeting. Long Island's next big event is scheduled for November 13 when the now traditional travel dinner will be held. Food for this dinner is flown in from the country of its origin (Long Island duck, anyone?). The annual beer party was held on October 14 in New York City at the Seventh Regiment Armory. Joe Wiley'40, chairman, and Jerry Schooler'59 were responsible for a really fine performance in putting this year's party over. There was a large and enthusiastic turnout. The next major event in New York will be the annual banquet, December 2.

The Silver Stein Award this year is being received by Al Glassett'20. Chairman for the annual banquet is George Dandrow'22. President Julius Stratton'23, will be principal speaker for the occasion. Signaling closer ties with the M.I.T. Club of Northern New Jersey, their President, Donald Green'26, and our New York Club President, Ed Edgar'35, have agreed to sponsor the annual banquet as a joint operation. Westchester section is holding its first dinner meeting on November 13 at the Scarsdale Country Club. Ed Goodridge '33 is master planning this meeting with support from committee members Dave Buchanan'31 and Howie Bollinger'43, past chairman of the Westchester section. A panel will discuss the subject "Preparing Your Child for College." A program schedule for the entire year has been pretty well set up now. It totes up to 19 planned gatherings, including six technical seminars, two Westchester dinners and a golf outing, four varied Long Island functions and two functions for M.I.T. undergraduates to be held in New York. Stronger ties with the undergraduates, long on the planning board, are being established this year. Tom Farquhar'60 is representing the student body. At this time an undergraduate tea and Christmas dance are being formulated to be held during vacation periods. To further a closer relationship, undergraduate memberships to the Club are being offered for the first time this year. The Club's quarters, located across the street from Grand Central Station in the Biltmore Hotel, are open to students, Alumni and Faculty. If you want information on Club affairs or membership, drop in or write, c/o Hotel Biltmore, 43rd Street and Madison Avenue, New York 17, N.Y. — James M. Margolis'52, *Secretary*, 218 Richbell Road, Mamaroneck, N.Y.

Oklahoma Officers Plan 1959-1960 Schedule

On the evening of October 7, 1959, the officers of the M.I.T. Club of Oklahoma met in Tulsa to co-ordinate this year's meetings and programs between Oklahoma City and Tulsa, select speakers, and delegate administrative responsibilities for our future activities. Mr. Fred Lehmann'51, Secretary to the Alumni Association from Cambridge, was present to offer suggestions and information on our plans, and also relayed the latest to us from the Institute.

Others in attendance were Breene M. Kerr'51, Scott W. Walker'40, Bernard E. Groenewold'25, Robert K. Schumacher'45, Ernest T. Schoenwald'44, and yours truly. — John P. Dowds'51, *Assistant Secretary*.

Washington Hears Dr. Little At Dinner Meeting

Eighty-one members of the M.I.T. Club of Washington and their guests attended the first dinner meeting of the season in the auditorium of the Cosmos Club on October 16 and heard Dr. Elbert P. Little talk on the work of the Physical Science Study Committee. Following a social hour and excellent dinner, the president of the Club, Major General C. E. Loucks, USA (Ret),'31, introduced the speaker as a man well qualified to discuss the work of the committee of which he is the executive director. The committee was organized at M.I.T. in 1956 to devise a modern course in physics for secondary schools and to prepare materials for such a course. Dr. Little described the work of the committee in preparing a new textbook, a handbook guide for teachers, set-ups of apparatus for experiments, a series of educational films, and a science bookshelf, a supplementary source for students who wish to go beyond the material presented in the textbook. He demonstrated several ingenious experimental set-ups including a wave tank which projected reflections of waves formed on a water surface on the ceiling of the auditorium. He explained that the apparatus for the experiments had been initially designed so that it could be made by the teacher from easily available materials, but in view of the time necessary to prepare the apparatus, the materials were now furnished in a kit which greatly simplified the fabrication. Following his talk Dr. Little showed two movies prepared under the direction of the committee as examples of the educational films available to teachers for instructional material. His talk was enthusiastically received as evidenced by the questions asked and the interest displayed by the audience.

Dates for additional meetings currently scheduled for the season are: December 28, 1959 — reception and luncheon for M.I.T. students from the Washington area who are home for Christmas vacation; February 26, 1960 — dinner meeting at which Dr. H. F. York, Director of Defense Research and Engineering, Office of the Secretary of Defense, will speak; and May 13, 1960 — dinner meeting and annual election, speaker not yet announced. — Lt. J. G. Beebe-Center, Jr.'56, *Secretary*, 3516 Lowell Street, N.W., Washington, D.C.

Severance Visits Miami Valley

The first meeting of the 1959-1960 season for the M.I.T. Club of the Miami Valley was held at Benham's Catering in Dayton on October 5. Alumni present were Z. P. Abuza'41, K. K. Balbach'58, C. M. Billman'25, R. O. Dehlendorf'24, M. J. Gibbons'06, R. T. Olsen'42, W. G. Payne '27 and W. L. R. Rice'53. Donald P. Severance, Secretary-Treasurer of the M.I.T. Alumni Association, was scheduled to be our speaker. However, by the time he finished answering the various questions and comments during dinner, he found we had extracted his planned talk from him in bits and pieces. The subjects covered were many and varied, ranging from the automation of Alumni address cards to tuition at the Institute. We were particularly engrossed by the discussion between Don and Mike Gibbons on the early history of the Institute. All present learned much about M.I.T. at the turn of the century.

It is perhaps little known that many of the Alumni in the Dayton area are officers at Wright-Patterson Air Force Base. Out of the 168 Alumni, 33 are Air Force officers. An additional 15 to 20 are either Civil Service employees at the base or are local representatives of companies doing business with the Air Force. With about a quarter of our Alumni continually changing due to reassignment or discharge from active duty, we can easily lay claim to being the most fluctuant of the Alumni clubs (and probably the most out of date on our address list). In recognition of the many Alumni in uniform, we hope to have one of our next meetings at Wright-Patterson's Officers' Club. This should help strengthen Alumni ties and also give us a chance to better understand the type of work the Alumni on active duty conduct. — William L. R. Rice, *Secretary*, 384 Canova Lane, Dayton 31, Ohio.

Peru Club Lauds Alfonso Rizo-Patrón

The M.I.T. Club of Peru held a luncheon meeting on September 17. We congratulated Alfonso Rizo-Patrón'40 for his recent appointment as Peruvian Minister of Development and Public Works. This appointment, a recognition of his technical ability and his contributions to the development of Peruvian mining and industry, honors the M.I.T. Alumni of Peru. Alfonso is a member of a prominent family of M.I.T. men: Gustavo'42, Eduardo'44, Jaime'48, José'47 killed in an automobile accident in 1953, and Fernando'55.

At this meeting the following members were present: Carlos Aguirre'51, Martin Althaus'54, Alfonso Ballón'43, Alejandro M. Bastante'43, Dante A. Capella'45, Guido H. De Rossi'40, Eduardo Dibós'47, Luis Dorich'44, Raúl A. Ferrand'49, Alfonso Guzman'44, Michael Kuryla'36, Felipe Olaechea'52, Jaime Olaechea'48, Wilfredo A. Pflucker'34, Walter Piazza'47, Alfonso Quiroz'53, Alfonso Rizo-Patrón'40, Eduardo Rizo-Patrón'44, Gustavo Rizo-Patrón '42, Jaime Rizo-Patrón'48, Juan C. Rosas '39, Gustavo Tode'42, and Miguel Tudela '46. — Raul A. Ferrand'49, *Secretary-Treasurer*, Wilson 1044, Lima, Peru.

New Officers Elected In Japan Club

The general meeting of the Association was held at the Industry Club of Japan (Nippon Kogyo Club) in Marunouchi Tokyo on June 3, 1959, from 5:30 P.M. for election of new officers and free talking on the Association's activities and possible plans for the future.

The following officers were elected: President, Dr. Shikao Ikehara'28, XVIII, 22-1 Shimizu Cho, Meguro-ku, Tokyo; Vice-president, Mr. Masaru Miyauchi'29, VI, 658 Yukigaya, Ohta-ku, Tokyo; Secretary, Dr. Sumiji Fujii'54, II, Department of Mechanical Engineering, Faculty of Engineering of the University of Tokyo, Motofujicho, Bunkyo-ku, Tokyo.

The members were very pleased to hear that Mr. Y. Chatani'22, who had been president of this Association since 1956, was appointed by President Stratton for a five-year term as honorary secretary in Tokyo.

After the business session the schedule was to hear from Dr. W. C. Hollinger'53, who was expected to arrive at Tokyo on way to Pakistan to join a mission advising the Pakistan government on its economic development. But Dr. Hollinger could not arrive in time. A week later Dr. Hollinger arrived and was taken care of by Mr. Chatani. He had interviews with a director of Export and Import Bank of Japan, the Manager of Japan Development Bank (in lieu of the Vice-president Mr. Hirata of the Bank, with whom appointment was made, but went on a business trip as Dr. Hollinger's arrival was delayed) and the executive director of Japan's Heavy Machinery Association during his short stay in Tokyo.

Dr. Hollinger was especially pleased to meet his old friend, Dr. S. Ichimura'53, Professor of Osaka University, who came over from Osaka for the purpose. Alumni members who intend to visit Japan are always welcome to communicate in advance with this Association (address: Secretary or officers as above or Y. Chatani, Honorary Secretary in Tokyo, 2862 Setagaya 5-Chome, Setagaya-ku, Tokyo). — SUMIJI FUJII, *Secretary*.

Colonel Newton Speaks At Los Angeles Meeting

The educational counselors of the M.I.T. Club of Southern California deserve a special word of praise for their work in contacting West Coast M.I.T. freshmen and giving them first-hand information about the Institute. They include the Chairman, P. Golsan'12 and Counselors, P. K. Bates '24, C. L. Cataldi'50, R. M. Copsey'44, G. M. Cunningham'27, R. E. Hiller'31, K. C. Kingsley'23, T. G. Loomis'44, S. F. Lunden'21, C. S. Sammis'29 and F. A. Yett'40.

A dinner meeting was held at the Institute of Aeronautical Sciences building in Los Angeles, on September 29, 1959. Guest speaker was Colonel Carroll T. Newton'33, who is currently in charge of a district organization of the Corps of Engineers. Colonel Newton spoke on flood control in the Pacific Southwest, construction of missile bases, and other allied activities.

Alumni attending the meeting were; L. D. Asay'46, P. Bates'24, H. Beebe'10, S. Bessen'44, G. Buckley, H. H. Calvin'12, C. L. Cataldi'50, T. J. Chang'37, B. S. Coleman'19, R. M. Copsey'44, H. Crowell'15, J. S. Cullison'41, G. M. Cunningham'27, R. S. DeWolfe'36, P. Golsan'12, J. J. Guarrera'43, R. Hutzler'40, Hyman'57, R. M. Kallejian'16, T. G. Loomis'44, S. J. Losh '54, S. E. Lunden'21, W. H. MacCallum'24, J. A. Mankes'52, R. McKenzie'31, S. Osborne'26, E. M. Pace, Jr.'17, H. Pardee'09, D. Peterson'55, H. Phillips'57, H. Postal'25, A. Schwartz'47, P. Schwartz'23, Stone'55, R. Stringfield'03, B. C. Turner'28, A. Wagner'38, L. Young'50. — JOSEPH W. MARSHALL, *Secretary*, Bymco Engineering, 904 West Hyde Park Boulevard, Inglewood, Calif.; LOUIS YOUNG, *Assistant Secretary*, 2234 So. Spaulding Avenue, Los Angeles 16, Calif.

Rochester Entertains Prospective M.I.T. Men

On November 2, members of the Educational Council entertained a number of high school students and their fathers at the University Club. The program was arranged by Harry Essley'36 and Fred Kolb '38 and was designed to tell the students as much about M.I.T. as possible. Sam Jones, Assistant Director of student aid, represented the Institute. — ARNOLD MACKINTOSH, JR., *Secretary*, 164 Glen Haven Road, Rochester 9, N.Y.

Perlman Speaks In New Jersey Club

The fall meeting at Hotel Suburban, East Orange, on October 12 was addressed by Mr. Alfred E. Perlman'23, President of the New York Central System. Mr. Perlman's talk proved not only interesting, but exceedingly colorful, frank, and forceful, particularly in regard to the commuter situation and the socialistic nature of our government. He covered technical developments including maintenance control of engines by spectographic analysis of the oil, automatic freight classification yards, utilization of lower grade fuels by development of a dispersant, and the handling of trailer trucks on special flat cars. The controversial questions concerning New York Central's desire to culminate passenger service, its losses, and the high taxes levied on railroads by the government, elicited the most discussion.

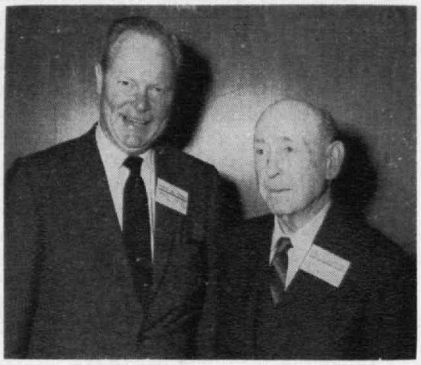
Officers for 1959-1960 are A. Donald Green'26, President; James A. Daley'50, Vice-president; Rudolph J. Ozol'36, Vice-president for programs; Joseph Wenick'21, Treasurer; H. D. MacDonald'22, Assistant Treasurer. The next meeting will be December 10, at the Hotel Suburban in Summit. The speaker will be David A. Shepard '26, Executive Vice-president and Director of Standard Oil Company of New Jersey, who will discuss the Middle East situation. — JAMES J. SHYNE'43, *Secretary*, Smull Avenue, Caldwell, N.J.; HOWARD E. MILIUS'38, *Assistant Secretary*, 9 Tuxedo Place, Cranford, N.J.

Deceased

ROLAND G. GAMWELL'86, May 8
JOHN M. HOWELLS'90, September 22
JOHN S. CODMAN'93, September 9*
J. VAUGHAN DENNETT'93, July 6*
FREDERIC H. KEYES'93, June 21*
SUSAN W. PEABODY'94, August 8*
FREDERICK W. DAMON'96, September 20
JOSEPH HARRINGTON'96, September 7*
JAMES W. SMITH'97, September 19*
HENRY C. BELCHER'98, August 18*
WINTHROP B. WOOD'98, September 7*
CHARLES A. LEARY'00, October 4*
WILLIAM R. LEWIS'02, September 14*
PAUL A. MONTANUS'05, April 21
RAY E. SHEDD'07, September 29*
MRS. EDWARD B. ALFORD'08, September 17*
RICHARD C. COLLINS'08, no date given*
HAROLD W. GRISWOLD'08, August 27*
KENNETH E. CARPENTER'09, May 14
MAURICE E. HARRIS'10, August 8*
RALPH S. DAMON'11, August 9*
AMBROSE D. GRING, JR.'11, 1958
JOSEPH H. SHAW'11, November 1957*
GEORGE S. SAWYER'12, September 11*
HARRY BRAUDE'13, August 28
OLIVER E. CONKLIN'14, June 16
ROY H. CROSS'14, August 16*
GEORGE K. PERLEY'14, September 30*
PARRY KELLER'15, August 28*
HERBERT O. MAXWELL'15, August 24
BYRON Q. JONES'16, March 30*
LEWIS H. PRATT'16, September 3*
HSIEN WU'16, August 8*
WEEMS CRAIG'17, August 30*
IRVING B. CROSBY'17, September 18*
LESTER C. CONNER'18, September 3*
HARRY J. COYNE'18, July 5*
CLARENCE H. DAGNALL'18, August 15*
IRVING H. HALL, JR.'18, 1958
ARAM G. PAUL'18, no date given*
FRED M. GILL'20, September 19*
ORMOND W. CLARK'21, August 24*
MILTON W. DEISLEY'21, January 18*
J. BURRELL KEITH'21, March 23*
DANIEL M. MACNEIL'21, September 1*
HUGH D. SEAVER'21, May 21*
COLVER P. DYER'22, August 5
HOMER L. FERGUSON, JR.'22, July, 1959
WALTER F. MUNFORD'23, September 28*
BERNARD E. PROCTOR'23, September 24*
THOMAS BOEKE'24, 1957*
JAMES G. MCPHERSON'24, December 1958*
HENRY F. MCKENNA, JR.'25, September 18*
CORBIT HOFFMAN'25, no date given†
ALFRED M. NORTON'27, September 9*
GLENN N. ANDREWS'29, September 18
JOHN W. CHURCH'29, June 2
JOHN G. KIRKWOOD'29, August 9*
NICHOLAS K. LUCAS'31, August 27*
RICHARD M. SIEGEL'35, September 12
GORDON W. ANDREW'39, August 6*
ROBERT K. BLANCHARD'40, June 7
VINCENT R. MURPHY, JR.'49, August 5*

*Further information in Class Notes.
† See 1926 Class Notes.

Alumni Officers' Chicago Conference



Danel W. Edgerly, '98, (right) headed registrants' list, was greeted by Alumni President Hanley.

Chicago chairman of the Alumni Officers' Conference on October 3 was Dale D. Spoor, '22, (left); Harlan H. Davis, '40, President of the M.I.T. Club of Chicago, formally opened the conference.

Philip L. Coleman, '23, (left) received a bronze beaver citation from President Edward J. Hanley, '24, of the Alumni Association at the University Club dinner which concluded the all-day conference.

Mrs. Barbara Powers (left) and Mrs. Geri Kunstadter, both '49, were only Alumnae attending.

Speaking on "The Role of the Alumni" were (left to right) Joseph E. Conrad, Henry B. Kane, '24, D. Hugh Darden, Robert M. Kimball, '33, F. Leroy Foster, '25 (who was moderator of the panel), Volta W. Torrey, Donald P. Severance, '38, and Frederick G. Lehmann, '51. The final talk after a day of discussion was given by President Stratton.

Framingham Club Hears Ellis Talk on Russia

The first meeting of the fall season was held Tuesday, September 22, at Armand's Beacon Terrace on Route 9 in Framingham. Members and guests enjoyed a social hour before dinner, giving all a chance to chat and exchange news.

Speaker for the evening was Ray C. Ellis '22, Vice-president and General Manager of the international division of Raytheon Manufacturing Company. Mr. Ellis gave a most interesting talk on his recent extensive tour through Russia. His particular interest during the tour abroad was the Russian electronics industry which he described to the group.

Following the talk there was a short business meeting. Club officers for the year are: Frank Maconi'20, President; Harvey Fitts'27, Vice-president; Jay Mullen'44, Secretary; George McQueen'49, Treasurer. Attending as guest from the Institute was Fred G. Lehmann'51. Also attending were: G. R. Alden'13, G. E. Alden'44, J. A. Bergin'49, F. A. Bianchi'27, W. B. Brockelman '24, L. F. Brown'33, H. W. Bruce'51, R. U. Bryant'36, R. F. Chiacchia'51, R. H. Daly '52, W. R. Dickson'56, E. F. Dillon'47, W. G. Driscoll, Jr.'52, B. Edelman'53, J. Ferrucci'31, D. P. Flood'45, S. W. Gouse'53, W. Haberman'53, D. I. Hellstrom'50, W. L. Hilliard'29, J. M. Hitchcock'34, R. J. Hogan'49, J. F. Jacobs'52, A. L. Kaplan'54, R. Kates'54, D. B. Keniston'49, B. Kessel'48, W. C. Kirkpatrick'40, G. G. Lampke'54, J. H. Leon'24, W. J. McKay'45, H. Neitlich '49, H. E. Pendergast'50, W. H. Pickett'54, A. L. Powell'52, R. E. Quigley'52, T. J. Rinaldo'35, S. Rubinovitz'51, R. H. Sawyer'17, S. C. Scherer'47, G. E. Shrigley '30, F. W. Travers'35, R. Veo'53, E. W. Ward'27, L. Washington, Jr.'56, M. I. Woythaler'15, and S. Yalen'48. — JAY MULLEN, *Secretary*, 93 Hastings Street, Framingham, Mass.

Central New York Club To Hear Whitman

The M.I.T. Club of Central New York is well under way for the new club year, headed by President Gregory G. Gebert'50 and Vice-president Bernie Chertow'48. For the first meeting of the new season, an Alumni-student picnic was held in commiseration for area students departing for the new year at Tech.

Alumni and guests present included Miss Morley Ann Bielefeld and Mr. Bielefeld, Lee Fryer and Judy Fryer, John Comerford, Joseph Goldstein and Mr. Goldstein, Bernie Chertow'48, Greg Gebert'50, Gordon Gilkison'09, Ed Gruppe'22 and Mrs. Gruppe, Earle MacLeod'38, Ed Moyer'44 and Mrs. Moyer, Colonel C. H. M. Roberts'17 and Mrs. Roberts, and Dewey Sandell'49. A delicious dinner consisting of charcoal broiled steaks, prepared by chief chef Chertow, and beer, soft drinks, coffee, and rolls were enjoyed by all.

A successful year highlighted by a visit from Professor Walt Whitman'17, is anticipated by the club. — CHARLES L. STOCKDALE'52 *Secretary*, 118 Haverhill Drive, Dewitt 14, N.Y.

Class Notes

'91

The class secretary got word of the passing of our friend Joseph A. Warren a short time after our annual meeting in June. Joe was with us at that banquet, along with members of three generations of his descendants — daughter, grandson and great-granddaughter. Long shall we remember the gracious family reunion as part of our annual gathering. The letter which follows shows what a patient, kindly, lovable man Joe was up to the close of his distinguished career. He was a constant attendant at our class meetings and we shall miss him as of the passing of a brother.

"I hope that all of the members feel as well as I do. Because of my age I have given up many of the things I used to do, driving my car, for one thing, so that I can't drive to the annual dinner, as I did formerly, but I will make an effort to attend the June 9 meeting. I think that my daughter will furnish transportation. I am retired since January 1, but have the privilege of visiting my old office in the mill, which I do several times a week."

And here is the story which appeared in the Cortland, Maine, *Express* the day of his death, July 21, 1959. What a tribute it is to a worthy capable man: "Former mayor Joseph A. Warren, chief research engineer for the S. D. Warren Company, died suddenly today at his home here. Mr. Warren, the last member of the Warren family to be associated with the big paper company, was 88. He served as manager of the mills here and in Gardiner for 25 years and was also vice-president and director of research. He was a state representative for six years and mayor of this city for three terms. During the period when he was mill manager, the S. D. Warren Company was the largest paper company in the world.

"A lifelong resident of this city, he was born September 10, 1870, son of John E. and Hattie Brown Warren. He attended public schools here and graduated from M.I.T. in 1891. The grandnephew of S. D. Warren, he succeeded his father as manager of the Cumberland Mills and Copsecook plants in 1907. Earlier, he had served several years on the city council and was mayor, 1902-1904. He was elected vice-president of the company in 1925, and also was placed in charge of construction work the previous year. In 1932, he was appointed director of research, and nine years later was named chief research engineer, the post which he held until his death. He served actively in local Republican circles, being a member of the G.O.P. City Committee for many years and a three-term state representative, his last term being 1945-46. He ran unsuccessfully for state senator in the 1948 Republican primary. In 1945, he and his wife, the former Georgia Pottle, observed their golden wedding anniversary. They lived 64 years in the same house at 175 Cumberland Street.

"He was a charter member of the Warren 50-year club, and his 67 years of service made him the longest-term employee with the company. He was a past president of the local Rotary Club, a past treasurer of the Associated Industries of Maine, a member of Warren Congregational Church, and past director of several banks, including the Westbrook Trust Company, Fidelity Trust Company and Portland Morris Plan Bank. He also served as president of the trustees and regents of Walkers Memorial Library.

"In addition to his widow, Mr. Warren is survived by three daughters; Mrs. Josephine Cole, New York, Mrs. Georgia Gauld, Tucson, Ariz., and Mrs. Lois Humphrey, Boston, six grandchildren and several great-grandchildren." — WILLIAM CHANNING BROWN, *Secretary*, 15 Forest Avenue, Hastings-on-Hudson, N.Y.

'93

We regret to report the deaths of three members of the Class of 1893: John Sturgis Codman, 91, J. Vaughan Dennett, 91, and Frederic Hale Keyes, 88.

John Codman was the co-founder of the Boston extension of the Henry George School of Social Science and was well known in the field of economics.

A native Bostonian, he prepared for college at the Noble School. After graduating from Harvard in 1890, he attended M.I.T. and received his degree with the Class of 1893. During his early business years he was active in illuminating engineering and published many scientific articles on that subject. He was treasurer of the Fabreeka

Happy Birthday

Among the Alumni of M.I.T. now there are 59 nonagenarians and 774 octogenarians. LAWRENCE L. GAILLARD'97 celebrated his 90th birthday on December 28.

Eighty-fifth birthdays were reached by: GEORGE H. KNIGHT'97, December 2; ALBERT F. RUCKGABER'96, December 4; AMOS E. GILLESPIE'97, December 8; CHARLES L. W. PETTEE'97, December 14; HENRY W. CHAMBERS'01, December 31.

Eightieth birthdays were reached by: CHARLES CAMPBELL'04, December 1; JEREMIAH J. DONOVAN'04, December 1; HENRY S. PITTS'04, December 3; ALBERT A. CASANI '01, December 4; DENNIS F. HALEY'01, December 5; JOHN H. WALSH'07, December 5; ROBERT M. DERBY'01, December 11; JOSEPH T. LAWTON, JR.'06, December 19; HOWARD BAETJER'02, December 20; ALVAH W. DODGE'03, December 22; FREDERICK W. BARROWS'07, December 24; GEORGE E. T. EAGAR'02, December 25.

Products Company of Boston from 1919 until 1953.

From 1915 to 1918 Mr. Codman was manager of the Belgian Relief Fund in Boston and was decorated by the Belgian government. He was one of the original members of the American Civil Liberties Union in 1920 and served on the national committee for a number of years. He also served for several years as treasurer and vice-president of the New England Anti-Vivisection Society.

He leaves a daughter, Mrs. Benjamin M. Ellis, and a sister, Mrs. Redington Fiske, both of Boston.

J. Vaughan Dennett, a member of a noted seafaring family, was born and bred in Saco, Maine. In 1887 he sailed to India as a mate on an American sailing ship. After a few more voyages, Mr. Dennett gave up the sea as a career in 1889 and entered M.I.T. While at college he became interested in the development of reinforced concrete as a building material and he became a pioneer in this field, working with the Aberthaw Company of Boston. During this time he assisted in building the publishing house of the Christian Science Church, Boston. He worked in Massachusetts until the late 1920's when he retired and returned to Saco.

Surviving are his daughter, Miss Dorothy Dennett; two nephews, Carlton and Devon Dennett; a cousin, Miss Hannah Woodman; and several other cousins.

Frederic H. Keyes was a former administrative assistant at M.I.T. He graduated with a mechanical engineering degree in 1893 and served as chairman of his Class for 11 years. He leaves a daughter, Miss Nancy Keyes of Mercer Island, Wash. — D DE F.

'94

In writing the class notes relating to the 65th reunion, it was stated that no information had been received from John W. Kittredge. His son has now kindly supplied the secretary with the sad information that his father died in Warren, Ohio, after a very brief illness, July, 1956, following a long and useful life. He was 87 at the time of his death. Many of us remember him in the four years he spent with us at M.I.T., as a student in Mechanical Engineering, as a fine companion, and an excellent student. He was born in Chariton, Iowa, on March 26, 1869, but spent a portion of his youth at Hartford, Conn., and was a student at Phillips Exeter Academy from 1888 to 1889, entering M.I.T. in 1890. After receiving his S.B. in 1894, he spent several years as a deputy mineral surveyor and mining engineer in Colorado, but came east in 1917, working at Akron, and later for the Du Pont Company at Wilmington, Del. Later he went to Ohio, where the latter third of his life was spent in engineering work.

He was interested in many things, both civic and engineering. In the spring of 1956 he was awarded a certificate commemorating 50 years of service in Masonry. An ardent student of public affairs, he was a frequent contributor to the *Tribune*, the principal newspaper in his city. Although he rarely, if ever, visited the Institute after graduation, his association with it was dear to him, and he left a trust fund which will pass to M.I.T. on the death of his son and his wife, as evidence of his loyalty and devotion to his alma mater. John married Anne Louise Atkinson in 1900. They had one son, Severn W., now operations manager of the Brainard Steel Corporation in Warren, Ohio. John Kittredge was of sterling character and had a fine personality, and we of the Class who survive him, remember him with deep respect and real affection.

Dr. Susan W. Peabody, who for a time was a special student associated with our Class, and who for many years practiced in Chicago, died at the Circle Rest Home in Oceanside, Calif., on August 8. Her association with the Class was so brief and specialized that the secretary can only report the news of her decease.

The secretary now will offer some promised excerpts from the letters from classmates who could not be at our reunion. It is regrettable that the letters cannot, for space reasons, be given in full, for they were most enjoyable and heartening, recalling friendships of long standing, and adding much to our satisfaction of the reunion; for by these letters the writers were in effect participants. John Nowell sent regrets and wrote that he could not come as his wife had just had a cataract operation and he could not leave her. (Happily, it was successful.) E. M. Parker wrote: "Due to physical limitations, I cannot attend the reunion. Extend appreciation to Mr. and Mrs. Crary for their generous offer to be hosts."

From Jim Kimberly: "Would like to be with the Class for the reunion. Unfortunately, both Mrs. K. and I have been under the weather lately so it is impossible, but we will be with you in spirit. Of course, I am proud that son Jack'26 is now head of the company (Kimberly-Clark). Kindest regards to all." George Sherman wrote: "I itched to say yes, but now know it is most unpractical, so here are my regrets and my appreciation for Horace's invitation. Regards to all the boys who may be there."

Harold Chase said: "Have been hoping I might attend the reunion. While general health is good my legs have gone on strike and I can navigate only for short distances without giving out. My best regards to all who are there. It is remarkable that so many are hale and hearty in the late 80's." Arthur Tidd wrote to say: "Sorry, but no can do. Mentally fit as ever, though my physical activities are much curtailed. I have incipient glaucoma and get pretty short of breath at times, but no steady aches or pains. I live by myself in a little bungalow near my married daughter. Take my main meal with her and her family and am well looked after, as the saying goes. I have a workshop, in which I can putter around as much or little as the spirit moves me, and a hobby of long standing, the genealogy of the Tidd family. Regrets and regards to all." From F. C. Baker: "It would be most pleasant to come, and very kind of the Crarys to invite us, but have had a prolonged illness, and although now in good general health it would be a real task to make the trip. Kindest regards to all who get there."

From F. M. Mann: "It would be unwise to make the trip from California at this time. I am quite active and seem to be in good physical shape, but am curtailing my activities. It would be a thrilling pleasure to come and I should like to show my respect and honor for our magnificent M.I.T." Jack Wray wrote: "It grieves me to report that I am unable to come. My galloping days are behind me, and both vision and hearing badly affected. (Same here, Jack.) I'll be at the dinner in spirit. May God bless every one of you, to borrow a sentiment from Tiny Tim." (Jack knows his Dickens.)

From Mrs. G. S. Whiteside we heard: "I do not travel much any more, so cannot attend the dinner. My greetings to all. My two grandsons are doing special things — one getting a master's degree in English at Columbia, summa cum laude; the other will be one of 75 young people to be guides at the U. S. Exhibition in Moscow. These are pleasures to me." Mrs. A. B. Tenney wrote: "I regret exceedingly that the infirmities of age with additional arthritis will prevent me from attending the reunion, and I sincerely appreciate being remembered. The recollections of attending former reunions with Albert will always remain dear to me. Greetings and all good wishes to '94." From Mrs. Norwin Bean: "I wish it were possible for me to accept the invitation to the reunion. How much Norwin would have enjoyed it. With most cordial messages to all."

Mrs. H. E. Warren wrote: "Regret that I cannot attend. What a pleasure reunions have been in the past, and how Harry would have enjoyed being with his classmates again." And from J. M. Holder: "Thanks for the letter. I am very lame and do not find it easy to attend affairs such as this, to my great regret."

Your secretary has just returned from a three week's trip to Colorado Springs and the California metropolises. In Colorado Springs he not only was aided to secure needed data for the history of the Refrigeration Research Foundation, which he is supposed to be writing about, but he also encountered the heaviest snowfall ever known in that city in September, nearly two feet of it, which broke down trees and branches, causing great damage, while at the same time giving most beautiful snow scenes, and Christmas effects. Thence he went to Los Angeles where summer weather prevailed, and where the Dodgers likewise prevailed. Here he enjoyed the hospitality of the P. K. Bates'24 lovely home in Santa Monica, and Mrs. Bates even chauffeured him on numerous errands of business or pleasure. One's own children could not have been more devoted. Then came a few days in the Bay area, with a wonderful 24 hours with classmate Jack Nowell and his wife, at their lovely home in Hillsborough. The secretary was then treated to the fine hospitality of the Hugh Griswold's'27 at Burlingame during most of the remainder of his stay, which was topped by induction into the Old Guard of the Northern California Food Technologists in San Francisco in the evening, before taking a jet plane for Boston. It was a fine excursion combining work and play, and the renewal of many friendships. — SAMUEL C. PRESCOTT, *Secretary*, Room 16-317, M.I.T.

'95

My thanks to all who replied to my letter of October 9, requesting information to keep our mailing list up to date. If you have not replied or failed to receive my letter, please send us a postal or better a letter with your present address and any news about yourself and other classmates. — LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass.; ANDREW FULLER, *Assistant Secretary*, 120 Tremont Street, Boston, Mass.

'96

A letter from Joseph Harrington, Jr., tells the sad news of his father's death on September 7, in Riverside, Ill., where he had lived for more than 50 years. Enclosed was a clipping from the *Riverside News* telling of a park, proposed and laid out by Harrington: "Riverside still has time to show it appreciates what Mr. and Mrs. Harrington did for the community. Mrs. Harrington has shared her husband's contributions to the village . . . she has been very active in civic, religious, and social affairs." Appreciation was shown by naming the site Harrington Park. In engineering work Joe was acknowledged the "modern pioneeer" in combustion engineering. He invented a stoker that bore his name. The government in its time of need called on him and he was honored by professional citations. Our Class is glad to be one of those that have recorded one of three generations of Joseph Harringtons at M.I.T.; 1930 and 1962 are the other two.

Mrs. Rockwell sent word of Fred W. Damon's death at Hanneman Hospital in Boston, on September 20. She and Mrs. Taylor, the doctor's secretary, Bob and Mrs. Davis and the secretary represented the Class at the funeral in the Unitarian Church in Arlington, Mass. The Reverend Lewis spoke of the assistance the Damon family had been in the affairs of the church and town. Grandfather David succeeded Frederick Russel Hedge as minister in 1835; and Fred and his sister Virginia Wellington have continued the family benefactions to the church. After his retirement from the tanning oil business, Fred lived in Cambridge at the Commander, a few doors from Rockwell's house. They played golf together as long as they were physically able and after abandoning the golf course continued to see each other frequently. Many members of the several Masonic societies to which Fred belonged attended the funeral services. Fred's nephew, Mr. Smith, of Connecticut, said he appreciated the flowers sent with the sympathy of the Class.

Samuel Tupper Smetters responded to the pleas of the secretary for news by sending a few notes of his career. In addition to his many designs, set forth in the class book of 1942, he has designed an assembly machine for rocket "Bazooka," a machine for making silk black powder fuse bags, and a method and process of heat treatment of steel shapes and plates. Only a year ago in September he retired and still has plenty to do keeping up with the many organizations to which he belongs. His farm and being a scout master of the Boy Scouts Association, may have kept him in shape to attend Alumni Day as he does each year. A plea is hereby entered for news from members of the Class who want the Class to be recognized as an entity rather than one of the old timers' group. — JAMES M. DRISCOLL, *Secretary*, 129 Walnut Street, Brookline, Mass.; HENRY R. HEDGE, *Assistant Secretary*, 105 Rockwood Street, Brookline, Mass.

'97

Through the Alumni Office we have received the sad news of the death of James W. Smith, XIII, September 19, 1959. He died at his home at Tower Hill, Brimfield, Mass.

George Wadleigh had the good fortune to meet Charles H. Pope, X, of Pope and Early, 110 West 40th Street, from whom we have had no word for some time. He was looking well and apparently is more active in business life than most of us. We are happy to have this good news and hope to hear from him often. — AUGUSTUS C. LAMB, *Secretary*, 61 Hillcrest Place, Amherst, Mass.

'98

Our distinguished classmate, Roger W. Babson, continues active in business, as will be noted from the clipping, quoted below, which has been sent to us by our new Assistant Secretary, Frederic A. Jones. The clipping is from the *Wellesley Townsman*, September 24, 1959, and is as follows:

"Mr. and Mrs. Roger W. Babson sailed from New York last Saturday on the Swedish American liner, Gripsholm, for a six-week business and pleasure trip to Europe. Mr. Babson will talk with business leaders and government officials in Sweden, Denmark, Germany, and Russia. They will return home on the same liner about November 10.

"Mr. Babson has enumerated the purposes of his trip as follows: (1) To learn what Russia exports in fresh fish, especially live caviar and spawn (roe); (2) To learn what tests have been made in Europe, including Russia, as to whether any fish product (cooked or live) is good for the brain; (3) To learn if the diet of advanced science students or research graduates is being given special attention in any of the above four countries; (4) To learn if the feeding of live fertile seeds, which need not be chewed, can improve health; (5) To endeavor to bring back from Moscow a teacher to supervise the Babson Institute students doing graduate work, along the lines of discipline and intensive work which are required of advanced students in Russia; and (6) To learn if there are any low-priced attractive investments in Europe."

Another persistent traveler of the Class of '98 is Carl S. High. After turning over his ranch in Kansas to his children and grandchildren, Carl started traveling, landing up in Sarasota, Fla., where he started another ranch. Carl has been a very faithful attendant at M.I.T. Alumni Day celebrations and the reunions and get-togethers of the Class. Last June, after Alumni Day, he visited with us in Marblehead en route to the new St. Lawrence Seaway opening celebration at Montreal, Canada. Carl was much interested in Marblehead — the vistas, historic and natural, past and present; and compared Marblehead favorably with Williamsburg, Va. Come again, Carl, for in our rambles about town we did not begin to exhaust its interesting and attractive features; and we always enjoy, indeed we are always thrilled by the visits of members of the Class of '98.

We regret to advise of the passing of two classmates: Henry C. Belcher and Winthrop B. Wood.

The son of Henry Belcher, Harold H. Belcher'25, wrote to President Daniel W. Edgerly advising that: "father passed away on August 18 after a rather short illness."

Through the courtesy of the Alumni Association we received a newspaper clipping concerning Winthrop B. Wood from the Nashua, N. H., *Telegraph* of September 8, 1959, which contained the following: "Winthrop B. Wood was born in Concord, Mass., November 7, 1875, the son of James B. and Ellen (Smith) Wood. He graduated from the Massachusetts Institute of Technology as a civil engineer. He was employed by the Bancroft Company of Wilmington, Del., and the Stone and Webster Corporation of Boston and New York. He retired in 1929 and moved to Mont Vernon where he has lived for the past 30 years. He was a member of the Benevolent Lodge, F&AM of Milford and a 32nd degree Mason. Survivors include his wife, Annie C. Wood of Mont Vernon; two daughters, Mrs. Frances Millett of Chappaqua, N. Y., and Ellen Wood of Mont Vernon, N. H.; three grandchildren; three great grandchildren; one niece and three nephews."

This being the last issue of The Review prior to Christmas and the New Year, we welcome the opportunity to wish all the boys and girls of '98, their children, grandchildren and great-grandchildren, also the in-laws a very Merry Christmas and a very Happy New Year. — EDWARD S. CHAPIN, *Secretary*, 2 Gregory Street, Marblehead, Mass.; FREDERIC A. JONES, *Assistant Secretary*, 286 Chestnut Hill Avenue, Brighton 35, Mass.

'99

Among the many replies to the reunion notice was one from Mrs. Henry C. Eaton, expressing regrets that her husband was too incapacitated to attend. Within the month came a clipping from the Peterborough, N.H., paper announcing Henry's death on June 18, and a second letter from Mrs. Eaton. She wrote that Henry had been in poor health since 1946 having suffered three strokes in that interim, but his mind remained clear to the last. He was a mechanical engineer at the Waltham Watch Company for more than a quarter of a century and for 16 years he served the State of Massachusetts in engineering administration and finance. For the past 14 years he lived in Peterborough, N.H. By his will he left $1000 to the Tech Alumni Fund.

F. Minot Blake, as previously recorded in this column, died on April 20 at the Hartford (Conn.) Hospital at the age of 80. Minot joined the engineering division of the Phoenix Insurance Company in Cincinnati, Ohio, in 1905. He was appointed superintendent of the special risk department at the home office in Hartford, Conn., in 1909, and elected assistant secretary in 1919. In 1936 he was elected vice-president, which office he held until he retired in October, 1952. Minot was also a former chairman of the executive committee of the Factory Insurance Association. He was a former city welfare commissioner and had held numerous positions on the various city boards, according to the *Hartford Times*.

In reply to the reunion circular letter, Charles F. Harwood reports that he has spent most of his professional life with the Worthington Corporation, at first as a sales engineer in the condenser department and after 1920 as manager of the department. In 1942 he was appointed assistant to the vice-president. He retired in 1950.

Letters were also received from nine other classmates who were prevented from attending either because of age or other reasons, namely: Ellery, Hern, Mork, Nathan, Pierce, Rood, Stone, Walker, and Watkins.

Just one week after our 60th reunion your secretary entered the Melrose-Wakefield Hospital suffering from a case of angina pectoris, a circulatory disorder. Whether this was a result of the day and a half of unusual activity is a question. Two weeks in the hospital, two weeks "grounded" (forbidden to climb stairs) and two weeks allowed to climb stairs but once a day, completed the recovery. — BURT R. RICKARDS, *Secretary*, 349 West Emerson Street, Melrose, 76, Mass., PERCY W. WITHERELL, *Assistant Secretary*, 84 Prince Street, Jamaica Plain, 30, Mass.

'00

The only class news that has come to the attention of the secretary during the past month is that of the death of Charles A. Leary, II, on October 4. At first he was engaged in various operations connected with rock and tunnel work. He later was in business for himself with an office in Boston, his work being chiefly concerned with borings, foundations, and other earth and rock work. A native of Waltham, he lived most of his life in Marblehead. He was a member of the Boston Society of Civil Engineers and the Holy Name Society of St. Mary's Star-of-the-Sea Church in Marblehead. He left two children, Miss Frances Leary and Dr. John H. Leary, both of Marblehead.

The secretary would very much like to receive suggestions from any member of the Class regarding the kind of reunion which we might have for our 60th next June. We hope that many of you will respond to this appeal. If you have any thought that you may be able to come to a reunion at that time, please let the secretary know. — ELBERT G. ALLEN, *Secretary*, 11 Richfield Road, West Newton 65, Mass.

'01

These notes will be brief as I have not much material and must make it last till more comes in. What I give is taken from class replies received last spring but which are still timely and, I hope, will be of interest to some of you. Following is news about F. Ward Coburn, Phil Moore, and Lyman Bigelow.

F. Ward Coburn, X, Birdsboro, Pa., writes that he retired from active life in 1952 and has done a limited amount of consulting work. Allen McDaniel, IV, Waterford, Va., who has given us news about himself before, reports: "My wife and I have recently moved from the Fairfax Meeting House, which we took over and remodeled into a home 20 years ago, to the cottage which we enlarged and remodeled last summer. The cottage was originally the school used by the Quakers in connection with the Meeting House. The latter we plan to convert into a home for elderly people. The problem is to find competent and responsible management. During the past six months I have served as consultant in connection with remodeling the Loudoun National Bank in Leesburg, Va. I was also supposed to supervise the construction but this I will be unable to do as I am tied down here at home with my wife who is ailing. As I shall be four score in September, it is about time I retired."

Phil Moore, II, from Easton, Md., says: "What is there for the retired guys to report? We all strive to live quietly and enjoy our leisure. The trouble for all of us, I guess, is to settle down and realize that we are pushing 80. Spent a few weeks in Florida in February and the high spot was seeing Ed Seaver and Milt Hogle. The three of us and our wives had lunch together at Clearwater. I had not seen Milt since graduation and must say that he is in fine shape. It was a great pleasure to be with these classmates again. Have been here since the middle of March and all seems to be going well with Mrs. Moore and me."

Our ex-president, Lyman Bigelow, last spring sent me a clipping from the Honolulu *Advertiser*. The clipping was dated August, 1958, and was headed, "At 80 a Lei for L. H. B." It said: "The *Advertiser* is happy today to join with his legion of friends in extending congratulations and aloha to Lyman Herbert Bigelow on his 80th birthday. Now in retirement he is taking a well-deserved rest from a long and distinguished career as a guiding influence in a monumental volume of public construction by the Territorial government that started just prior to the end of World War I and affected all major islands. Today at 80 he may well look with pride upon the part he played in helping to meet the needs of this growing age, secure in the knowledge that in his accomplishments in behalf of all of the people of Hawaii he served both wisely and well." It is an honor to have such a man in our Class.

As it will be nearing the Christmas holidays when you read this, may I wish you all a very happy holiday season. — THEODORE H. TAFT, *Secretary*, Box 124, Jaffrey, N.H.

'02

Our classmate, William R. Lewis of Foxboro, Mass., died on September 14, 1959, at the age of 81. Lewis was a native of Providence, R.I., but had lived in Foxboro since 1905, coming there as an engineer employed in surveying locations for a proposed interurban trolley line. At the completion of that job four years later, Lewis decided to make Foxboro his home and in subsequent years took an active part in the affairs of the community. His first service was that of fence-viewer, which at that time entailed considerable work as many property lines were in dispute. Later he served as water commissioner from 1911-1929, as a member of the school board 1916-1929, and from 1930-1932, as a member of the advisory committee. For three years he was highway superintendent and served on the board of assessors from 1942 until he retired last August. In the course of his professional career he had been employed by a number of engineering firms including Stone and Webster and French and Bryant and for six years was with Bird and Son of East Walpole. In 1941 he joined the Service Company of Foxboro and was manager until 1951.

Lewis leaves five daughters and two sons — Mrs. Gordon Nowlan, with whom he made his home, Mrs. Mary U. Smith, Mrs. Rena F. Shaw, and Mrs. Patricia Hicks, all of Foxboro, Mrs. Anita Leavitt of Portsmouth, N.H., William R. Lewis, Jr., of Foxboro and James Lewis of Sharon, Mass.

Dan Patch had a very interesting letter from Harlen Chapman, Winter Park, Fla., who writes as follows: "It seems that more and more M.I.T. men are locating down here. This has been the coolest summer we have had in our seven years here, while other states north of us had a hot time. We were away for most of September, spending a week with my daughter's family at Myrtle Beach, S.C. My son's family came down from Connecticut to join us there. On our way home we stopped in Augusta, to see my grandson's family which includes three great-grandchildren, two boys and one girl. My other grandson, Harlen M., III, is a senior at M.I.T.

"We still are quite active. Like to get in three or four golf games a week on our little course here, nine holes and flat ground, but still not so easy as it sounds. However, we enjoy it and usually have a foursome. Still enjoy baseball games. Rollins College always has a good team and northern colleges send teams here which make it interesting." Chapman was following the world series at the time he wrote and expressed disappointment in the playing of Chicago's team but still hoped they would win. All of which causes us to quote the poet: "Of all sad words of tongue or pen, the saddest of these are; 'it might have been.'"—BURTON G. PHILBRICK, *Secretary*, 18 Ocean Avenue, Salem, Mass.

'03

Some of our classmates are quite travel-minded. Clarence and Ruth Joyce took their usual hegira across the ocean last

summer, this time sojourning in London to take in a few notable plays and Ambassador Whitney's reception for Americans on July 4. They also visited the Barbara Hutton House and toured the south shore. Then they went to Switzerland to enjoy the sunny shores of Lake Geneva, where the unusually warm season made daily swims most acceptable. Back at home, Clarence enjoys the M.I.T. Club of New York, but finds few '03 men present. Gib Gleason finds the Florida climate preferable to that of New Jersey and has migrated to Winter Park where he would welcome '03 visitors. Jim Welsh is also expected soon at Winter Park, Fla.

John J. A. Nolan has written a series of historical articles about East Cambridge in the 1880's, which appeared in the September and October issues of the *Cambridge Chronicle*. His descriptions of family life in the gaslight era are most nostalgic and interesting. For example: "Our facilities for light were equally antique in homes and elsewhere . . . The streets were dark, as the iron lamp-posts cast their weird shadows but a short distance. These lamps were lighted by a man arriving at dusk, carrying two wooden poles on his shoulders. He raised one having a hook on its end to turn on the gas and then the other, that had a brass cylinder containing a lighted taper, to light the gas."

If you like to read news about other classmates, send in something of interest about your own activities. You may find the effort most rewarding. — LEROY B. GOULD, *Secretary*, 36 Oxford Road, Newton Center 59, Mass.; AUGUSTUS H. EUSTIS, *Treasurer*, 131 State Street, P.O. Box 1422, Boston, Mass.

'04

There isn't much news this month but what we have is of a high order for it deals with two of our officers. According to information released by the lady member of the family, our president and his wife should, before you read this, have established themselves in their new winter home in St. Thomas, Virgin Islands. The Langs planned the house and started construction when they were there last winter. Now it is completed and they are quite excited over occupying it.

Your secretary tried to contact the treasurer recently in a search for class news but his good wife said he was busy and couldn't come to the phone. It seems that some beautiful flying insects had constructed a house attached to the residence of our treasurer. These wasps, as they are commonly called, are well known for their architectural and engineering ability and as usual did a masterful job without benefit of Pop Swain's course in structures. I regret to report that our treasurer, who is usually kind hearted and genial, ruthlessly destroyed the home of his fellow engineers. He reports that they didn't sting him but I am sure you will agree that they would have been justified in doing so.

(Note) There isn't much money in the treasury now so we don't need to be as respectful to the treasurer as we formerly were. — CARLE R. HAYWARD, *Secretary*, Room 35-304, M.I.T., Cambridge, Mass.; EUGENE H. RUSSELL, *Treasurer*, 82 Devonshire Street, Boston, Mass.

'05

News is as scarce this month as it was plentiful last month. A feast or a famine, but thanks to my few faithful correspondents for the few feasts. It gives me an excuse for waxing personal when my natural modesty would not permit it. Life in this charming little country village is charming, but not dull. Of course, Ruth and I joined the Grange and the Historical Society; she, the very active Woman's Club. In spite of my above mentioned modesty I find myself an officer in the Sandwich Historical Society and the Sandwich Old Home Week Association. People from back home ask: "What do you do to keep from being bored?" We answer: "Not an idle moment," and go on having fun.

We do get to Boston every few months. Last week while there I phoned Doc Lewis from Hub Kenway's office. Doc Lewis had just returned from a trip to England, France, and Belgium. Two of his granddaughters and Mrs. Lewis (Hub's sister) accompanied him, one of the daughters to remain in Belgium a year as an exchange student with a Belgian who is to spend a year in Boston. Doc volunteered the information that the Lewises are celebrating their 50th anniversary on October 20. Belated congratulations to both.

In response to a letter to Bill Green, recently, I had a reply indicating that Bill's physical condition shows little improvement, but that his spirit and sense of humor are still tops. He says: "They tell me that I have been lying on my left side in this beautiful living room for about five years, so forgive me if I have no news of interest." I'll bet he'd like to hear from some of his old friends — address 340 Rumstick Road, Barrington, R.I. Andy Fisher writes that he saw Prince Crowell recently and found him the same happy bustling chap of 40 years ago (50, maybe). He is still racing in the Cape Cod knockabout class every week in the summer, vying with kids 60 years his junior.

In suggesting to Roy Allen to try to get some of our 11 classmates on the Pacific Coast to accompany him to our 55th reunion next June, he reminds me that my geography is poor, as from Escondido to Orinda is about 600 miles. Nevertheless, I believe he will make a good recruiter. He says: "Last spring we spent three days in Los Angeles, where I was presented a certificate and pin of the Legion of Honor of the American Institute of Mining, Metallurgical and Petroleum Engineers, and looked up old friends from M.I.T. — Bill Deavitt'06 and Walter H. Adams'03. They are the only Tech men I have seen since coming to Banning. You are better situated in that respect.

"Because of Grace's operation in May, which sapped quite a bit of her strength, we have taken none of the trips that we had planned. But we are hoping to drive east next spring, for her class at Mount Holyoke has its 50th reunion, and I would like to attend my 55th. Probably it will be our last drive across the country, the next time will be by public conveyance." — FRED W. GOLDTHWAIT, *Secretary*, Box 32, Center Sandwich, N.H.; GILBERT S. TOWER, *Assistant Secretary*, 35 North Main Street, Cohasset, Mass.

'06

Now and then comes an interesting and stimulating letter, such as the one from Bob Cushman, II, from Portland, Ore., the latter part of September, in which he makes some pertinent suggestions. To quote: "Letters from classmates are always interesting. Notations on travel, home and business locations, families, and general activities could, however, be amplified in the field of special interests. This applies to our retired group in particular. The subject, interests — I don't like the word hobbies — could stimulate an exchange of ideas through letters to our '06 column. It would be interesting to learn more about the details and scope of interests in which we in retirement engage. For example — are most of us still interested in technical fields? . . . And on the lighter side, what are some of the unusual pursuits that add to our happiness and contentment?

"Diversification is in my opinion the major factor in attaining complete joy in living a rounded life of retirement. Let me list two of my major interests, hoping that this will strike a responsive chord in others. On the technical side I have devoted some time to a study of miniature batteries, their characteristics, functions, and performance. On the lighter side a major interest for many years has been collecting pictures of marine vessels." (Having been born and raised in Gloucester, that sure interests me, and I wonder how Bob arranges them, in an album or a file.) "The collection starts with woven reed craft lined with asphalt, rafts, dugouts, and continues down to the present day. Historic significance, unique design, and just sheer beauty have influenced my selection. Some subjects have been difficult to secure — for example, the 30 ton pinnace "Virginia," the first vessel built by the English in America, in 1607, location Popham, Maine. I have only mentioned two of my interests, but several others keep me busy. Let's hear from other classmates about their interests, technical and general, through the medium of The Technology Review." Thanks Bob, for your very welcome and helpful letter, and your suggestion should bring a flood of letters. You may recall my reminder at the beginning of last month's notes: "We all do like to hear about your doings, your interests, your work, and your family."

Many of us living near Boston expected to be up before dawn on October 2 to see a total eclipse of the sun, but the weather was most unkind, thick overcast and cloudy, so 50 or so scientists at Marblehead mostly drew a blank. Some went up in planes and at 20,000 feet were in the clear. That evening a few of the local '06 group took a tour, sitting in the living room of Sherman Chase, with kodachromes. President Kidder brought Tom and Georgiana Hinckley and Marion went with me. Jim had a few slides of their new home and some of Washington, D.C., with son Norton and the grandchildren. Sherman

has hundreds of slides in his collection, and showed us some of the ones he took last spring when he and Bertha spent several months in Europe and England, including of course the Brussels Fair. He tries to get unusual shots, and most of them were just that! Then we enjoyed Bertha's delicious refreshments.

George and Elsie Guernsey missed the show that evening as George was in the hospital following an operation. I had a long chat with him just before starting these notes. He had been home about a week, was gradually getting around, and said they expected to winter in Florida. with a stop for a few weeks in Wilmington, Del., to spend Christmas, I believe, with daughter Mary and family. Much Noel probably! And by the way, do you know 15 ways to say the equivalent of Merry Christmas?

Best wishes for your health and happiness at Christmas and throughout the New Year, from President Kidder, V.P. and Class Agent Sherman Chase and Bertha, Marion, and yours truly. — HOWARD B. ROWE, *Secretary-Treasurer,* 11 Cushing Road, Wellesley Hills 81, Mass.

'07

The Alumni Officers' Conference has become an important factor in presenting to the officers of the graduate classes the work that the Institute is doing in its varied fields of scientific research.

The third conference was held September 11 and 12 at Cambridge. 1907 was represented by Don Robbins and your secretary. This was my first such conference, and I enjoyed to the full the opportunity of being a guest of the Institute. We slept at Baker House, ate at Graduate House, Walker Memorial, and the Faculty Club. Kresge Auditorium was the scene of the general session on Friday morning, where the importance of the role of the Alumni was ably handled by a panel of officers from the Alumni Fund and the Alumni Association. Don and I both attended the seminar for class agents in the afternoon, when I helped Don get out the letters on Alumni giving, which you men have now received and read.

Dr. Stratton and his family were such gracious hosts at the President's House that many of the group barely reached Walker Memorial in time to enjoy the very sumptuous buffet dinner that was provided. Dr. Stratton was the after-dinner speaker. Saturday morning we were given a demonstration in Compton Hall of the application of electronics to foods and "surveying with the speed of light." As a Course I man, I could not help comparing the long field days I spent, gathering data for topographic maps, with the modern methods shown, where surveying instruments level themselves and distances are obtained without tape or chain. A machine does all the estimating and computing in a matter of minutes. The seminar closed with a luncheon at the Faculty Club, after which we were told of the time taken and the thousands of high school boys interviewed to start off each Freshman class in the fall. I hope, as your secretary, I may have the opportunity of attending many more of these conferences. They are well worth while.

Speaking of the Alumni Fund, may I urge each one of our Class to make your gift *now,* to give as much as you possibly can, but at least give something.

Don Severance tells me that, as a 50-year class, The Technology Review automatically goes to everyone who has an M.I.T. degree or who has contributed to the Alumni Fund. You get The Review for free, so at least send its subscription price as your gift to the Fund. 1907 gave in 1958-1959, $22,074. We have contributed from 1940-1959, inclusive, $300,637.

Seymour Egan very thoughtfully sent me a news clipping, giving the obituary notice of the death of Ray E. Shedd in Wakefield, Mass., on September 29, 1959. Seymour represented the Class at the funeral. I knew Ray quite well at the Institute, as he was a Course I man, and our names were close together in the alphabet. He served 50 years in the Massachusetts Public Works Department, from which he retired in 1954. Since then, he was employed as a civil engineer by the Clarkeson Engineering Company of Boston. Ray and Mrs. Shedd observed their 50th wedding anniversary last August.

The death of Edwin Bonta was noted in the November Review notes. In reply to my letter of sympathy to Mrs. Bonta, she wrote to me, giving the details of Ed's death: "He had a ruptured appendix which was operated on successfully — then something went wrong, and a second operation was necessary, from which he never rallied. His illness was of short duration and his death most unexpected."

I received a clipping from Carole A. Clarke, Secretary of '21, residing in Glen Ridge, N.J., telling of the dedication of the Allan R. Cullimore Memorial Scout Lodge at Blairstown last June. This scout lodge, costing $32,000, was dedicated in memory of the first president of the Newark College of Engineering. Jim Garratt, a very close friend of Allan's, was one of the speakers. The fall dinner for the men of '07 in the Boston area will be held at the Faculty Club on Friday, November 6. We will not have a speaker but will informally discuss the affairs of the Class.

Following the Alumni Conference, our president and his new wife went to Virginia to care for two small granddaughters while their parents went to Germany on business. Don will be back for the class dinner on November 6.

As you men read these notes and think of some item of interest to share with the Class, please send it to me promptly. — PHIL WALKER, *Secretary* and *Treasurer,* 18 Summit Street, Whittinsville, Mass.; GARDNER S. GOULD, *Assistant Secretary,* 409 Highland Street, Newtonville 60, Mass.

'08

Received a card in late September from Merrill Burch, who was in Eugene, Ore. He is president of the Midwest Lumber Company and was making his annual trip through the lumber country. The picture on the card was of a logging truck, carrying a log which scaled 13,000 board feet and must have been a good 12 feet through the butt. It would make a good back-log for Paul Bunyan's fireplace. Later, I received a card from San Francisco where he was eating breakfast at the airport before taking a T.W.A. jet to Chicago and then a train home to Dubuque.

The Franklin Institute has announced that it will award a Frank P. Brown Medal posthumously to Hardy Cross, a Yale college professor, whose original moment distribution method revolutionized the design procedures for reinforced concrete structures.

Professor Cross, who lived in Virginia Beach, Va., will be honored at formal institute ceremonies Wednesday, October 21. The medal citation to Professor Cross, who died in February, reads: "For his outstanding career as a teacher, especially of engineering students during the past 50 years at Hampden-Sydney College, Brown University, the University of Illinois and Yale University; for his many contributions to professional publications during this time; and finally, for his original and later supplementary papers on the Moment Distribution Method of analyzing Indeterminate Structures."

Hardy Cross was born in Nansemond County, February 10, 1885. He received his B.A. in 1903; B.S. in Civil Engineering from M.I.T. in 1908; and his M.A. in Civil Engineering from Harvard in 1911. Among the honors Professor Cross received during his lifetime were: the Norman Medal from the American Society of Civil Engineers in 1933, Wason Medal from the American Concrete Institute in 1936. Lamme Medal from the American Institute of Consulting Engineers in 1944, and the Gold Medal from the British Institute of Structural Engineers, which has been given only three times in 35 years.

We are very sorry to report the death of several classmates. Mrs. Edward B. Alford (Mary Hale) died at her home in Brookline, Mass., on September 17; also Harold Griswold on August 27 at Hartford, Conn., and Dick Collins on September 20.

The following is from the Hartford *Courant,* August 28: "Harold W. Griswold, 72, was the former deputy manager and deputy chief engineer of the Metropolitan District Water Bureau. Born in Hartford, Mr. Griswold was graduated from M.I.T. in 1908 and joined the Water Bureau in 1913. He retired from the Water Bureau January 1, 1947, and had been engaged in private engineering consulting since then. He was a member of the American Society of Civil Engineers and the American Water Works Association and was past president of the New England Water Works Association. He was a communicant of Trinity Episcopal Church.

"Besides his wife, Mrs. Mable Laraway Griswold, he leave two nephews: Willard D. Jopson, Jr., of Islemorada, Fla., and John L. Jopson of West Hartford."

The following is from the *Cape Codder* of September 24: "Richard Carter Collins, 72, was employed as an industrial engineer at McElwain Rubber Company, Manchester, N.H., the U.S. Rubber Company, New Haven, Conn., the American Woolen Company, Boston, Mass., and the Botany Worsted Company, Passaic, N.J. The Collinses loved the Cape and in 1954 they

came down to make their permanent home at the old Collins House on Nauset Road, North Eastham. Together with his brother, Frank, Dick operated the Old Book Shop at their home. Dick's retirement was an active and useful one. A strong opponent of the National Park, he served as secretary of the Eastham Citizens Committee and as chairman of the Eastham Conservation Committee. His main interest was in what was the best for his town and he worked long hours in both capacities. He was a member of the Eastham Grange and attended the Chapel in the Pines. He is survived by his wife, Margaret (Edson), a son, Richard C. Collins, Jr., of Westfield, N.J., two daughters, Mrs. Nathan Cook of Concord, Mass., and Mrs. Otto Rode of Portland, Conn., eight grandchildren and his brother, Frank."

Dick greatly enjoyed his retirement. Spending most of it outdoors, clamming, oystering, scalloping, pulling his lobster pots, shooting ducks in the fall, and spearing eels through the ice in the winter. We are certainly going to miss Dick and his piano playing at our reunions.

Have you subscribed to the Alumni Fund yet? Don't put it off. H-A-S-N? — H. LESTON CARTER, *Secretary,* 14 Roslyn Road, Waban 68, Mass.; LESLIE B. ELLIS, *Treasurer* and *Assistant Secretary,* 230 Melrose Street, Melrose 76, Mass.

'09

Since September, 1955, the Institute has sponsored Alumni Officers' Conferences held on alternate years so that the third one was held this past September. The attendance includes members of the educational council, class agents, class officers, and Technology club officers. In addition there are Alumni officers and several members of the Faculty who are available for consultation and who give demonstrations of the research and laboratory work which the Institute is doing. The object of the conference is to acquaint the Alumni, through the class officers and others who attend, with what the Institute is doing educationally and in research, what its financial situation and its needs are, and how it operates through Alumni Clubs and the Alumni Office, in order to encourage more frequent contributions to the Alumni Fund.

On Friday morning, September 11, a general meeting was held in the Kresge Auditorium where we were addressed by eight panelists and later in the afternoon smaller meetings were held. Art Shaw and your secretary attended the one for class agents. It was at this time that Art signed the many Alumni Fund letters that you have probably received. Late Friday afternoon there was a reception by President and Mrs. Stratton at the President's house, followed by an excellent buffet dinner in Walker Memorial at which President Stratton told us of the present activities of the Institute and its plans for the future. The Class was represented at the conference by Molly, XI, Art Shaw, I, and your secretary, VI. In a pamphlet, *Annual Report of the M.I.T. Alumni Fund, 1959,* which was given us, there were two pictures, one of President Stratton and the other of Molly presenting the 50-year gift of the Class to President Stratton, following the Alumni dinner last June. Since these conferences have been held, the Alumni Fund has shown marked increases. Another excellent feature of the conference is that it enables the Alumni of the several classes to become acquainted with one another and frequently there is renewal of old friendships. Furthermore, Alumni become acquainted with members of the Faculty, the personnel of which inevitably changes some each year. We also have opportunity to see the new and older laboratories and the research and student experiments that are being conducted there.

In earlier notes we stated that we received many letters from class members who could not attend our 50th reunion and that on account of space limitations we would spread the news items from these letters over the coming issues of The Technology Review. We are including some in the notes below.

Albert Barnes, VI, wrote from River John in northern Nova Scotia that he had hoped to come but could not make it. He adds: "My professional life since graduation has been in the telephone field and I retired in 1952 after 43 years of service. The last 28 years of service were with the Bell Telephone Company of Canada in Montreal, Quebec. On retirement I returned to my native province, Nova Scotia, and built a modern bungalow on the 'Sunrise Trail,' Route 6, which skirts the Northumberland Straits. My hobby is oil painting and during the summer and fall I motor around the province with my canvasses and easel looking for pleasing sites to paint. This, with the care of a lawn and kitchen garden, keeps me busy and happy. Should Tom Spooner, Phil Chase, or Bob Doane show up at the reunion, please give them my kindest regards." (Bob Doane is deceased.)

Professor Harold Lang, VII, wrote from Pasadena Drive, Pittsburgh, as follows: "I am enclosing a check for the class dues which should have been attended to some time ago. I regret very much that I shall not be able to join the rest of the Class at our 50th reunion, but several commitments will prevent my being there. I am now a professor emeritus of Carnegie Tech, having retired in 1955. Since then I have been employed as chief bacteriologist of the Duquesne Brewing Company of Pittsburgh, work which is different from teaching but very interesting. Mrs. Lang and I are both in fairly good health and I am able to work everyday. I am planning to take our usual vacation at our summer place in North Truro during the month of August so it woud be rather difficult to make two trips to Cape Cod in one summer, much as I would like to join you. Please remember me to any of the Class who might remember me. With best regards."

Art has received the following from Tom Chapman, III: "It was nice to hear from you and today I am sending in my donation to the Alumni Fund as usual. I was indeed sorry to miss our 50th class reunion, particularly as I had hoped to make it, up to the last minute. Two recent heart attacks and poor eyesight following an operation for cataracts just scared me off. I am now retired after 18 years with the government in RFC. My wife and I continue to live here in Washington, not because we like it particularly, but because Colorado, which we consider our home, has an elevation rather high for a heart patient. We have raised three sons, all of whom are married and doing well. The oldest one Ted, Jr., has followed in my footsteps and is now a consulting mining engineer and geologist with offices in Albuquerque, N. M., and Vancouver, B. C. The second one works for the Harshaw Chemical Company in Cincinnati, Ohio, and the third one is teaching English at Monterey Junior College in California. We have five grandchildren, the oldest 15 and the youngest 6 being boys. Needless to say they are all wonderful." — CHESTER L. DAWES, *Secretary,* Pierce Hall, Harvard University, Cambridge 38, Mass.; GEORGE E. WALLIS, *Assistant Secretary,* 185 Main Street, Wenham, Mass.

'10

During the past month I have received the notice of the death of Maurice E. Harris. The following is from the Lowell *Sunday Sun:* "Maurice E. Harris died Saturday, August 8, at St. John's Hospital, after a brief illness, aged 70 years. He was born in Russia, the son of the late Aaron and Minnie Harris, but had been a resident of Lowell for the greater part of his life. Mr. Harris was graduated from Lowell High School at the age of 15 and was the first Jewish boy ever to win a letter in baseball at that school. After high school he matriculated at M.I.T. and later transferred to Boston University Law School, where he graduated in 1912, after which he became a member of the Massachusetts Bar Association. Until ill health forced his retirement in 1958, Mr. Harris had been active in the management of the M. E. Harris Company, cotton and wool waste, which company he founded."

I was most pleasantly surprised in September. Walt Spalding and his wife of Honolulu stopped in to see me. They were here on pleasure and business. I was very sorry their stay was so short but they had to be in San Francisco the next day. Luther Davis called me recently. He has been in poor health but has fully recovered. Four members of the Class attended the meeting of class officers at the Institute on September 11 and 12; Hal Manson, Jack Babcock, Ralph Horne and your secretary. It was a very interesting two days and provided a stimulus for the class agents and officers to urge every member of the Class for greater support of the M.I.T. Alumni Fund.

I have received a very brief note from Larry Hemmenway on our 50th reunion. Evidently Larry is putting forth a fine effort to have a good attendance from New York next June. — HERBERT S. CLEVERDON, *Secretary,* 120 Tremont Street, Boston, Mass.

'11

In a letter from Bob Morse, VI, received during the summer, he mentioned that Margaret and he now have four grandchil-

dren, three boys and a girl. The granddaughter, Carolyn Brodsky, is one year old. Bob's daughter and his son-in-law were engaged at the time they were dinner guests at our 1951 reunion. The Morse second home is in Sandwich, Mass., on Cape Cod, where they spend about half their time. Their permanent residence is still Summit, N.J.

We have just learned of the death in April, 1955, of Arthur T. Gay, IV. Arthur was with us during our junior and senior years. He was born in Japan and prepared at Milton Academy. Not an active Alumnus, the only professional connection of which we have knowledge was with Philip S. Avery of Boston. John Alter says he remembers him as "a student very much interested in his work and a fine companion."

Another delayed report informs us of the death in November, 1957, of Joseph H. Shaw, II, who was with us during our Freshman year but did not maintain contact with the Class. The latest issue of the Alumni Register lists him as President of A. H. Shaw Company. His home at the time of death, and apparently for most if not all of his life, was Plymouth, Mass.

A more recent death was that of Ralph S. Damon, I. He was with us as a Freshman and had been inactive. The Milton, Mass., *Transcript* said: "A native of Milton and lifelong resident, Mr. Damon attended M.I.T. and Lowell Institute. Mr. Damon was a construction manager at Boston Plate and Window Glass Company of Boston. He leaves his wife Mildred (Potter) Damon."

From my old-time fellow townsman Harold A. Smith, II, I have a note in a reminiscent vein about our native city and our high school. For many years he was with the International Shoe Company at Manchester, N.H. After retiring he moved to his present home in Miami, Fla. With Harold's letter was a clipping from the North Dade, Fla., *Journal* reporting an interview with General George C. Kenney, I, who, with his wife Sally, was in Miami to attend an Air Force Association convention. The interview, which if quoted in its entirety would take a full page, says in part that the General believes a war between the United States and Russia is inevitable; that the first 24 hours of the next war will determine its outcome; the cost of getting ready for this war should not be the primary concern; and our defense against enemy air attack is inadequate. Also, to quote: "In addition to his books 'General Kenny Reports,' 1949, and 'The MacArthur I Know,' 1951, the General has a new book just off the press last month, entitled, 'Saga of Pappy Gunn.' Jack Warner is considering this book for a movie with Jimmy Stewart playing the lead role of Pappy Gunn (Major Paul I. Gunn)."

By the time these notes appear the Holiday Season will be at hand. Mabel and Jack extend greetings and best wishes. — JOHN A. HERLIHY, *Acting Secretary*, 588 Riverside Avenue. Medford 55. Mass.

'12

Word has just been received of the death of George S. Sawyer in Wilkesbarre, Pa. George had been chief engineer of the Spring Brook Water Supply Company of that city for many years. He passed away on September 11 and it is hoped that more details of his later life will be forthcoming.

Arthur Rich Champagne is now living at 3 Front Street, Maynard, Mass. He retired several years ago as supervisor of the electrical department at Assabet Mills in Maynard. Frank is an avid sportsman and for exercise walks three miles and back to the Stow post office every day. A letter from Randall Cremer tells of his interesting life on the Island of Mallorca in the Mediterranean. He describes the climate as being well near perfect with sunny days and mild weather. Since he settled on the Island prices have gone up somewhat as more and more people are retiring to this pleasant place. He strongly urges anybody looking toward retirement to spend a few months there as he feels they will be attracted to become permanent settlers. Walking is one of his principal pastimes as well as swimming and boating, and reading in the winter. He will be delighted to see any of you passing his way.

Jim Cook writes of a pleasant visit with Bernard and Laura Morash in Toronto. The Morashes have recovered completely from the severe illnesses they both experienced in 1953. Their daughter Caroline is now married and making her home near them in Toronto. Both families took off on a trip to Florida, driving down through Ohio, Kentucky, and Tennessee, returning by the coastal route. Ending up in Marblehead, the Morashes visited a few days before driving back home.

Later in the spring, Jim joined Harold Brackett and Larry Cummings for a fishing trip at Jones' Camp on Long Lake, Princeton, Maine. After the trip they all went to the Cummings' summer home at Squam Lake, Holderness, N.H. Larry retired several years ago and now travels widely, spending the winter in Florida and the summer in New Hampshire with trips to Europe in between. — FREDERICK J. SHEPARD, JR., *Secretary*, 31 Chestnut Street, Boston 8, Mass.; JOHN NOYES, *Assistant Secretary*, 3326 Shore Crest Drive, Dallas 35, Texas.

'13

"Look, Ma! no holes." Yes, look boys, no news. What are all you '13ers doing for excitement, amusement, or occupation?

Bill Mattson is the only one who realizes that your scribe can record the accomplishments of his classmates only if you respond to his pleadings. Bill writes in part: "I'm rather busy completing the many additions to 'Mattson Manor,' as our friends call it: first, the interior — new carpets, drapes, and some furniture; next project — a new lawn with a sprinkler system and plantings. Hope to complete this before winter sets in. Jo and I have also been active in many social events. A few weeks ago we had a house-warming with 30 guests including Larry and Arry Hart. Larry had a Junior Achievement Conference in Estes Park, so they stayed with us for about 10 days. We had a lot of fun — went fishing during a week-end." (Never thought that Bill would become a great big outdoor man.) "This week, the national Kappa Sigma Conclave is being held in Denver. Saturday evening, one of the officials gave a trout supper at his beautiful home. Last night, we went to the 'chuck wagon' dinner at the Brown Palace and Wednesday we will attend the banquet. It was good to meet a lot of my Kappa Sig friends." Also, Bill writes us that Charlie and Ann Thompson arrived from Los Angeles and will visit for a week, following their extensive trip to Alaska and California. The Thompsons also came to Boston but due to Charlie trying to catch up on his back work and yours truly helping to sell a half a million dollars worth of real estate on the South Shore for Town and Country Homes in the last three months, there was only one telephone conversation between us.

The past few months have seen many of our very close friends and classmates pass on to the great unknown. The Alumni Office reports that Fred C. Hersom died March 25, 1959. If anyone can furnish us with more details, we shall gladly supplement this announcement. About a year ago, we noted in this column that Fernand C. Weiss was honored by officials and friends in Alabama for wonderful engineering accomplishments as Vice-president in charge of engineering and construction for the Alabama Power Company. With many thanks to Margaret S. Stagner of his engineering department we learned the very sad news that after a few days illness, F. C. died on May 28, due to a heart attack. All of you who attended our 45th must remember F. C., the genius who was responsible for the extensive power developments along the Coosa and Warrior Rivers and the dam on the Coosa River near Leesburg which was named in his honor. He left no close relatives. Let's stop a few moments in our busy lives to pay homage to a distinguished classmate. Again, the Alumni Office reports that another of our classmates has joined his maker. Franklin A. Bent passed away June 23, 1959. We have no further details.

The following transcript has been received from the *Independent Republican* of Newburyport, Mass.: "Mr. and Mrs. Byron Gynan left last Sunday for Huntington, W. Va., to visit Mrs. Gynan's brother (Albert C. Brown) who has been critically ill for many weeks. Upon arrival they learned he had died only a few hours before. Albert Caleb Brown, 67, was born in Newburyport, son of John Brown. Educated in Newburyport schools he attended Brown University and graduated from M.I.T. For a time he was with the Missouri, Kansas, and Texas Railroad. He then became a civil engineer with the U.S. Army Corps in Huntington W. Va. Mr. Brown was a widower, his wife having passed away only a few months previous. Besides his sister, Mrs. Byron Gynan of Newburyport, he leaves three sons, one daughter, and grandchildren. The sons are George S. Brown, Pittsburgh, Pa., and Donald Brown, Covington, Ky. The daughter is Mrs. Leon Cooper from Seattle, Wash." The Class of 1913 extends to Albert's family its most heartfelt sympathy.

We stand in a few moments of prayer, when we record the death of one of our ever loyal friends and classmates. Harry Braude, who passed away August 28, 1959.

After his graduation Harry entered a very busy world of business and finance and was affiliated with Chandler Farquhar of Boston as President and Treasurer. His contributions to all M.I.T. funds were always bountiful. May he receive his well deserved reward. And again it is our painful duty to announce the passing of still another classmate, Paul R. Fellows of Lemon Grove, Calif. We are at a loss to give more detailed information. Your help is necessary in order to enlighten the Class about our living associates as well as those who have passed away. So long, until next month. — GEORGE PHILIP CAPEN, *Secretary and Treasurer,* 60 Everett Street, Canton Mass.

'14

First an apology for not crediting Charlie with picking out the Publick House for the reunion. It was Skip Dawson who objected to the place first selected by your secretary, then Charlie suggested the Publick House. Skip, Charlie, and your secretary met there and decided on the place. Skip was then made house master to take care of details. We all owe him a vote of thanks for the wonderful work he did.

J. Warren Horton, who did distinguished work in submarine detection in both world wars, has been at the Naval Laboratory at New London, Conn., since then. Recently he became a director of that famous Underwater Laboratory. Horton is one of the outstanding scientists in this country in the field of submarine detection.

It is with sorrow that we announce the deaths of two of our classmates. The first was that of Roy H. Cross on August 16. Roy was a native of Nashua, N. H. He began his college education at Worcester Polytechnic Institute and transferred to M.I.T. to complete his studies. He spent all of his time after graduation with the Westinghouse Electric and Manufacturing Company at Springfield, Mass. During World War II he developed a gyrostabilizer used in tanks, which permitted guns to be maintained at a level sight while the tanks traveled over rough terrain. The company awarded him a silver W — an honor given only to those whose contribution is considered outstanding. He is survived by his widow and a daughter.

One member particularly well known to his classmates, since he was our assistant class secretary for several years, was George K. Perley, who died on September 30. George came from Rowley, Mass., and was on the Freshman and Sophomore baseball teams. He was vice-president of the Electrical Engineering Society and a member of Vectors. After graduation he served as an assistant in the Department of Electrical Engineering at the Institute, then transferred to the Holtzer-Cabot Electric Company where he remained for 30 years. Next he worked for the Edwards Company. Although George attended our last reunion, he had already been ill for several years. He married the former Ruth Richmond on March 7, 1917, who, together with two sons and a daughter survive him. His residence for many years was at Port Washington, Long Island, N. Y. — C. P. FISKE, *President,* Cold Spring Farm, Bath, Maine; H. B. RICHMOND, *Secretary,* 100 Memorial Drive, Cambridge 42, Mass.; H. A. AFFEL, *Assistant Secretary,* R.F.D. 2, Oakland, Maine.

'15

To all classmates and their families — friendly wishes for a happy holiday season with good health and good cheer for the New Year. Get ready for our 45th reunion; June 10–13, 1960, at Snow Inn on the shores of Cape Cod at Harwichport, Mass. Max and Weare have come up with the best yet — a charming, typically Cape place with excellent accommodations that include private baths, room phones, elevator, Cape Cod specialties of fresh lobster, clams, and fish carefully prepared, a bar, golf, swimming, boating, and sailing in the Inn's 46-foot schooner. Plan to be there with all your old 1915 gang. Pirate George Rooney will be co-chairman with me to handle details here. At class dinners in Boston in November and in New York in January we'll present more of the plans.

That unbeatable, perennial committee of Al Sampson and Barbara Thomas put on another successful and enjoyable class cocktail party at the M.I.T. Faculty Club, Cambridge, on June 15 just before the Alumni Day dinner. About 75 classmates with their families and guests enjoyed this delightful get-together. Joe Livermore sent regrets from Edinburgh, Scotland, but promised to be at our 45th. Maurice Brandt, from Salisbury, N.C., sent best wishes to all the gang and will be at our big reunion. He wrote: "Help Azel get home from the party." Ah me, what a reputation! Lindsay Lamb, Michigan City, Ind., and Forrest Purinton, Waterbury, Conn., sent regrets. Virginia (Thomas) Johnston wrote from Princeton, N.J.: "We are so disappointed to have to miss Alumni Day and the 1915 cocktail party. We'll be thinking of you all." From Wellsville, N.Y., Helen McEwen wired: "A warm greeting to all Bill's 1915 classmates. May your party be a gay and happy one."

St. Eleno Tower Piza's sister, Mrs. Margaret Crane, wrote: "Isn't it nice that Christmas comes in December and the M.I.T. '15 party in June, so that my impulses to write you are evenly spaced on the calendar? So many thanks for remembering me and keeping me on the 1915 list. We do get to Massachusetts fairly frequently but alas, Massachusetts is a horizontal state and I'm nearly as far from you when there as when in New York. Last April Ned had an assignment in Florida and I went along. Our first headquarters were in central Florida right near Orlando, in a tiny little town called Winter Park. I took one look at it and said I would stay put while Ned covered the rest of the state. It would be a divine place to retire to. Are you making big plans for the 1960 reunion? I can't believe it will be 45 years since . . . and I'm not feeling one bit mellow; I'm just plain old. We both send all the best to you. Send a few lines before your next Christmas card." It's always nice to hear from these old friends of 1915.

George Rooney and I represented our Class at the inauguration of Dr. Stratton as our new President. It was an impressive ceremony. Later at the Alumni dinner, the following from our Class were present: Lawrence H. Bailey; Everett S. and Mrs. Coldwell; M. Warren and Mrs. Cowles; Henry F. and Mrs. Daley; Marshall B. and Mrs. Dalton; Weare and Mrs. Howlett; Benjamin and Mrs. Hurvitz; Parry Keller; Azel W. and Mrs. Mack; Henry L. and Mrs. Marion; Archibald S. Morrison; Waldo F. and Mrs. Pike; Albert E. and Mrs. Sampson; Frank P. and Mrs. Scully; Herbert D. Swift; Frederic E. and Mrs. Waters; Carl W. Wood; Max I. and Mrs. Woythaler.

Ben Neal's 50th reunion fund is progressing steadily. Ben is doing a conscientious and monumental job on this. He works hard at his solicitations with many letters and calls. Do your part — send him a contribution. We cannot wait until 1965 and then expect a few outstanding men to give everything. This is a representative class effort and worthy of every individual's support. Do your bit for 1915 and for Ben. Max Woythaler as class agent and Clive Lacy as special gifts chairman deserve applause and appreciation for the outstanding job they have done for us in the Alumni Fund. In the 1959 fund year, with $91,450, we were third to 1905 and 1908 of all the classes preceding us. In the same group, with $469,557 total contributions, 1940-1959 inclusive, we are second to 1901. Nice going, fellows; keep up your good work for 1915 and M.I.T. In addition to his generous contribution to Ben Neal's fund, Herman Morse was chairman of the regional participation in Akron, Ohio, and secured the creditable total of 76.6 percent participation. Good and faithful work, Herm.

Frank Scully was one of 11 men to receive an "American Success Story Award" last July. This was given by the Free Enterprise Awards Association, Inc., of New York and was presented to Frank at ceremonies held at the Waldorf Hotel in New York City. The award states, in part, that "The recipient's up-from-the-ranks career symbolizes the rewards of success possible under the U.S. competitive free enterprise democracy." Congratulations to our Frank on this honor. Fran and I had an enjoyable dinner and pleasant evening here with Gustavo Gross '50, VI, from Guayaquil, Ecuador, S.A. We knew Gus as an undergraduate at M.I.T. He is manager of the telephone company in Ecuador and is an importer of electrical equipment. He and his bride recently spent three months in Europe on a buying trip for his government owned company and now he is studying and visiting the States on some sort of Fulbright grant. Equally as interesting was an evening Fran, Jac Sindler, X, and I had with Gustavo Calleja'43, IX, from Havana, Cuba, who came to the Alumni Officers' Conference at M.I.T. in September. We met him through Jim Hoey, President of 1943, who attends the 1915 parties as our guest. These two fine young graduates were excellent company for us and a shining example of the prestige and contacts of M.I.T. in these distant countries.

It's very sad to have to close this column with the news of the loss of one of our popular and outstanding classmates. On August 28, Parry Keller passed away at

the Akron (Ohio) General Hospital. His son, Parry, Jr., wrote me that he entered the hospital on August 26 for diagnostic observation which turned out to be a critical illness. He wrote: "I know my father enjoyed the warm friendships in his Class and always looked forward to his annual pilgrimmage to M.I.T. on Alumni Day, not to mention his many other activities in connection with his alma mater." Parry had been a resident Alumni secretary, interviewing and guiding applicants for admission to M.I.T. He had attended every class reunion and Alumni Day and was with us this past June. We all remember his wonderful camera shots at the reunions. Perhaps the most fitting tribute we can pay Parry, is to repeat the glowing memorial of the Akron *University Club News:* "The University Club mourns the passing of Parry Keller — gentleman — friend — and editor of the *University Club News*. For more than 11 years Parry edited the *News* and injected a small bit of himself through his readings, his quotations, and his broad thinking. Parry Keller retired from Goodyear in 1957, after 38 years service. He was manager of airplane, bicycle, and industrial tire design. He was born in Kittery, Maine, and was a graduate of the Massachusetts Institute of Technology, Class of 1915. A registered professional engineer, Parry was a member of the Society of Automotive Engineers, American Legion, Masonic organizations, Akron Art Institute and the Y.M.C.A. He was a long-time member of St. Paul's Episcopal Church and was working on a history of the Church at the time of his death. Parry was a life member of the University Club. He joined in November, 1919, and served on the board of trustees and as secretary. He has resided at the club for the past 16 years. Among his survivors are his son Parry, Jr., a former University Club member, now living in Cleveland; a brother, Adrian C. of Arlington, Mass.; and a sister, Mrs. Frances Freytag of Kalamazoo, Mich. Those who knew Parry personally loved him and respected him most highly. Those who did not know him personally felt his influence through the *Club News*. In a small way we were able to show our affection for Parry by presenting him with a plaque at the January business meeting. He neither expected nor sought any thanks for his work . . . he was that type of man. It has been our privilege to have had Parry Keller in our midst for so many years." The sympathy and feelings of our Class go out to his family. We'll all miss Parry but we'll never forget him. — AZEL W. MACK, *Secretary*, 100 Memorial Drive, Cambridge 42, Mass.

'16

The monthly luncheons in New York at the Hotel Biltmore (the Thursday following the first Monday of each month) continue to be lively, though not always heavily attended. In September, those present included Herb Mendelson (his birthday), Joe Barker, Phil Baker (from Detroit), and Jim Evans. Two '17ers joined us — Dix Proctor and Bill Neuberg. Phil Baker had one of those super-speed cameras along and recorded some history. The October luncheon was attended by Len Stone, Herb Mendelson, Jim Evans, and Harold Dodge, plus the invited good company of Dix Proctor. (Jim Evans says: "Lobby'17, please notice.") Herb Mendelson mentioned that he and Vi had been up in Alaska — Fairbanks, Anchorage, the Yukon. Just what he was doing there wasn't entirely clear — advising a client to build a fertilizer plant in Anchorage or advising a client not to; giving thoughts on a new strain of wheat for the Alaskan summer; hunting for all kinds of wild animals — catching or not catching a grizzly and a caribou; dodging the snow and hail; something about an Indian guide for nine days; and more. Jim Evans told how he and Jessie had been treated to the White-Mountains-ultra-hospitality of Steve Whitney for four days in Meredith, N.H., following a visit with Ralph and Sibyl Fletcher.

We regret to report that Lew Pratt died suddenly on September 3 at his Falmouth home. Don Webster, in writing, echoes the thought, "We're so glad he was at the reunion this year." Lew and his family moved to Falmouth in 1948 after 17 years as seasonal residents. His home then was in Larchmont, N.Y., and he was vice-president of Rudell Machinery Company. He retired to the Cape 11 years ago and joined with Mr. S. H. Wright in opening the Nobska Furniture Company. Later Mr. Wright left the corporation and Lew was joined by his son Richard in the ownership and management of the business. He was active in the Masons and the Rotary Club. He leaves his wife, Mrs. Gertrude Granfield Pratt (who we are glad to note was with Lew at our reunion in Chatham this June), four sons, and six grandchildren.

We also regret to report the death of Dr. Hsien Wu of Brookline on August 8. Don Webster, in sending a clipping, speaks of Dr. Wu as one of our quiet classmates and a thoroughly worthy citizen. Born in China, he came to this country in 1911, got his S.B. in Chemistry from Tech in 1916, and a Ph.D. at Harvard Medical School in biochemistry in 1920. He achieved reknown for developing the Folin-Wu system of blood analysis with the late Dr. Otto Folin, Harvard professor under whom he studied and later worked with. As noted in the *Boston Herald,* he left Harvard in 1922 for China, taught at the Peking Union Medical School for 20 years, heading the biochemistry department, worked with the Chinese government during World War II, and joined the faculty of the University of Alabama Medical School in 1949 where he remained until retirement in 1953. It has also come to our notice that Colonel Byron Q. Jones died on March 30 from a heart ailment at Walter Reed Hospital in Washington, D.C.

Joe Barker had an article in the September issue of *American Scientist* on the subject, "A Challenging Project for Sigma Xi and RESA Chapters and Clubs." Speaking of the great forward surge in technology in the "rapidly developing (sometimes called the undeveloped) countries," he notes that our high publication costs together with foreign currency exchange rates make it prohibitively costly for new technical institutions to procure adequate numbers of our publications for the use of their staff and students. There results a lack of knowledge and interest in U.S. technical and scientific developments and technological equipment that is available from U.S. producers. Joe then mentions one of President Eisenhower's "people-to-people committees," namely the Committee on Scientists and Engineers, of which he and Dr. Hugh S. Taylor are chairmen, and the fact that he and Dr. Taylor and a third member made extensive trips abroad last year. All agreed that the greatest need for a "people-to-people" relationship existed in the Mid-East area and the Far East. The article proposed that each Sigma Xi and RESA (Scientific Research Society of America) chapter and club select, say, three universities or technical schools in foreign lands where the problems outlined are acute and appoint a "people-to-people" committee.

In August came a fine letter from Berthoud Boulton in St. Louis, who retired August 1 from McDonnell Aircraft Corporation. He says he immediately took a step to increase "fun and mobility" by replacing his Buick with a beautiful Cadillac Eldorado. His failure, he notes, to answer a call for news last spring was due to busy days in the office, plus being tied up taking a tough graduate course in indeterminant structures. But he found that "some unused brain cells were stimulated." His past five years have been active and happy ones acting as the liaison between M.A.C. and the colleges, training and counseling over 4000 people in engineering, and working on salary and organization problems. He hopes to do some teaching in Washington University this fall, including a series of lectures to engineering Freshmen, telling them what engineering in industry is really like, and what is important in their college life. He says his family is scattered — his youngest daughter in Fresno with three children; another daughter in Washington, D.C., with three children; third daughter in New York with one youngster; and son John who majored in music is teaching in Michigan. He was planning a week's camping at the Lake of the Ozarks with son John and his oldest daughter.

And now more about the adventures and travels of Arvin Page. Starting April 1 and still in the Ozarks on their way back on June 13 (reunion time), he and Claire had a most interesting automobile trip from North Carolina out across the southwest, up the West Coast, and back via Yellowstone, Salt Lake, and Pike's Peak. Arvin's generous 29-page single-spaced opus gives us a bewildering wealth of material to report and it is hard to know where to start. One thing, if you're driving across country and want information on golf courses, just write to Arvin (820 Oaklawn Avenue, Winston-Salem, N.C.) for reliable details before you go. In the November issue we mentioned his calling on Jimmy Murdough in Lubbock, Texas, where Jimmy is head of civil engineering at Texas Tech. In Arvin's words: "He's fatter, has much less hair and wears bi-focals but with all that he bears a distinct resemblance to the Jimmy of 1916. I've forgotten his first job after graduation but think it was teaching at Michigan, then a stretch in the service during World War I. Worked for American Bridge

for several years but his interest lay in teaching. So when he was offered a position on the engineering faculty of the newly organized Texas Tech, he accepted. Hopes to continue another five years." Arvin's next 1916 contact was Lev Lawrason in Lev's office in Los Angeles. Says Arvin: "He has changed very little in appearance since 1916, in fact, he looks as though he could pole vault 11 or 12 feet with very little practice. He graduated in Mechanical Engineering and immediately took a job with a sugar company in Cuba as a chemist. After several years there he went to Texas and became connected with the oil industry with a manufacturer of oil equipment. He was sent to Argentina to demonstrate the operation of the equipment. He says the job should have taken about a month but it actually took him five. There must have been some local attraction. After he returned, he went out to California (about 1934) and with a partner organized the Deepwater Chemical Company at Compton, Calif., between Long Beach and Los Angeles. They take water from deep in the ground, extract the iodine, and turn the water over to the Union Oil Company for its return to the ground. He explained the process to me but all I retained is that from dirty looking water he produces white potassium iodide. Lev is on what he calls a semi-retired basis — he gets to the plant between 10 and 11 and leaves between 1 and 2. He now lives in Pasadena." Arvin's next contact was John Ingle in Carmel. Says John and his charming wife, Kaye, picked them up at their motel, and that John and he checked up on each other's activities since they last parted company in Akron in March, 1917: "At that time Goodyear sent John to Singapore. He stayed there 10 years buying rubber. Then he transferred to Sumatra where Goodyear had established extensive rubber plantations. After 10 years in Sumatra he came back to Akron. In the meantime he had married and begat two sons. During World War II he was called to Washington to work on the rubber problem in the course of which he got into the synthetic rubber program. In 1946 he retired to the San Diego area, but was recalled to Washington during the Korean trouble. They later settled in the Carmel-Monterey area. John wondered how I happened to find him as he had only had a phone for 10 days. I told him the answer lay in the efficiency of our class secretary's organization." Then with the Ingles, a tour to Point Lobos, and the "17-mile drive" through Del Monte Forest where, along the way, he saw the two famous rocks swarming respectively with birds, mostly cormorants, and seals. He expands on the beauty of this part of California. He expands further when telling about the golf course at Pebble Beach: "A honey — a truly beautiful course and a tough one if everything isn't clicking — several holes with the Pacific Ocean on the right of the fairway to catch a slice." John promised to come East in 1961 for the 45th. A few day later in San Francisco Arvin phoned Paul Page Austin, better known as Speed, but didn't reach him because he was in Bangkok. A further report on Paul is given elsewhere in this column.

Allen Pettee mentions (way down there in his beautiful Tyron, N.C., retreat) that while he has been only mildly interested in color photography, he was recently fascinated by an article by Land (of Polaroid) in the May, 1959, *Scientific American* on "Experiments in Color Vision." He strongly recommends reading this paper: "It sounds like a near classic to me. It must be flabbergasting to some. It will tickle my young Jim who has felt that Helmholtz was off the track on other aspects of vision."

Last month we told of Willard Brown's two weeks in Brussels as vice-president of the U.S. delegation to the International Commission on Illumination. On his way he spent 10 days in England with a trip up country on business in Leicester and over to Wales in a rented Ford Consul (same transportation your secretary and daughter had from Windemere to Durham in 1957) and, as Willard says: "On the wrong side of the road; 'you must keep left — you must keep left' is no idle refrain." Then after Brussels a 10-day trip by Volkswagen to a different city each night: "Eindhoven, Köln, Munich, Berchtesgaden, Salzburg (just in time for one of the Mozart concerts), Vienna, Linz, Innsbruck (a wild night at the 300-year-old-Weinstube frequented by Goethe), and to Zurich, doing a bit of business here and there. Then a night at a lovely new hotel right out on the lake at Neuchatel — with the Eiger and the Monch and the Jungfrau brilliant in the late evening sunlight. On to Dijon for the 4th of July dinner at the famous Chapeau Rouge; then a hectic week of business meetings and speeches in Paris; a remarkably good dinner on a Seine River boat, with a cruise up and down that still-romantic river in the twilight; and a 'Sound and Light' festival at Versailles, with a dinner at the same hotel where the German delegates were put up in 1919 when they came to sign the peace treaty. I had had dinner at that very hotel back in 1919 with Alexander Macomber of the Class of 1907, who was then a fiery Lieutenant Colonel of a machine gun battalion, on the night just before the German delegates arrived! Memories! Paris still fascinates and strains the pocketbook even though it is utterly different from the old Paris we knew in 1917–1919."

Maury Holland writes from Hawaii that any of the regulars are welcome for a swim at anytime at his home in Honolulu. He closed his consulting office in New York in July, 1958, after 18 years, plus 20 previous years with the National Research Council. In a recent article for a paper in Honolulu, in answer to the question: "What in the world are you doing in Hawaii?" he said: "We traded snow, skyscrapers, and suburbia for sun, sand, and sea!" He continues: "Our son who graduated from Yale last June (summa cum laude) is in the U.S. Navy and sold us a 'bill of goods' to come here for a year or two while he finishes his hitch. In 1960 he is going to Harvard and we to the middle-income-retirement-refuge-of-West-Coast-Florida in winter and New England in summer." He notes they are living in the Kahala section, with the beach only 150 yards away, looking out on Koko Head two miles east of Waikiki. Says Waikiki is now a tourist trap and he wouldn't be surprised if "in another five years the whole water front will be another Miami Beach boom-and-bust! People who want to live here are moving to other islands which are relatively unspoiled, as this was when I came here in 1926 en route to a Service Congress in Japan. My wife and I have set as our objectives: (1) to make a comparison of the year's climate and water temperature (74-76 here) with that of Florida and Cape Cod, (2) obtain specific data on cost of living from first hand experience, (3) enjoy 'aloha' of the Island in terms of new neighbors and friends, and (4) drink pineapple juice till it runs out of our ears; it's cheaper and better than what we've been drinking for 30 years." Maury has been invited to lecture at an international management conference and to hold seminars on research in small companies, a subject covered in his recent book *Management's Stake in Research*.

Here are three more retirements — two of them, Shatswell Ober and Stephen Simpson, reported in the June 9 issue of M.I.T.'s *Tech Talk*, and the other, Bob Burnap, in a July 31 R.C.A. news release. Back in 1916 there was no such thing as a Department of Aeronautics and Astronautics, and hence Shatswell, hearing of a shipyard in Bath, Maine, where they built top-notch destroyers, proceeded down East and became a hull draftsman there. Soon after, the bureau of aircraft production sent him to Dayton, Ohio, then back to M.I.T. as an aeromechanical engineer, where with Professor Warner's group he "tested Air Corps planes in the Institute's first wind tunnel. The wind tunnel, an affair of tar paper and two-by-fours, was right next to the power plant, and on several occasions the work crews rammed their coal digger right into the building. 'We'd just get a crow-bar and push the tunnel back into shape,' recalls Professor Ober. Since he started as a research assistant in 1922, Professor Ober has done outstanding work in applied aerodynamics and will continue to lecture after his retirement. Problems astronautic? 'I prefer things nearer the ground,' says he, chuckling that a book convincing the public that satellites are, after all, *quite* scientific, is in second edition."

Professor Stephen Simpson, of Maine, remembers all the to-do in the pageant and moving things from Boylston Street across the river in 1916. "Heading north to Millinocket, Maine, he did a stint as head chemist at the Great Northern Paper Company, and then was drafted by the Chemical Warfare Service. A lucky snarl of red tape returned him to the Institute when, in 1918, he was ordered to Cambridge; hopped on the train just before a second set of orders arrived to send him to Edgewood Arsenal. His period of instructing M.I.T. students about mustard gas didn't last long, however; 'When Germany found out I was in the war, they surrendered,' he grins. When he's not busy teaching quantitative and advanced analytical chemistry (half-time next year), Professor Simpson is like as not practicing new and spectacular magic tricks. It all started when an old bridge partner willed him a box of magician's equipment including some handcuffs belonging to Houdini. Professor Simpson soon became an expert, belongs to the Society of American Magicians, and, to his knowledge, is the only member in the country who has received

an award for going to *all* meetings for the last 20 years."

The third 1916 man to retire, Bob Burnap, had a year at M.I.T. after graduation as a research assistant in illumination and photometry. He then went with the General Electric Company in Harrison, N.J., in charge of the physical laboratory, took a military leave-of-absence to go with the Signal Corps, then returned to go into engineering and lamp design. By 1924 he was manager of the commercial engineering section of the lamp works. When the Harrison plant was taken over by R.C.A., Bob continued in the same position. He has been manager, commercial engineering, since 1930. He holds several patents on lamp design and, as your secretary knows personally, he is widely known and active in many professional and standardizing groups. He is a fellow of the Society of Motion Picture and Television Engineers (1934), the Institute of Radio Engineers (1947) and the American Institute of Electrical Engineers (1951).

From Bangkok, Thailand, late in August came a most interesting letter from Paul Page Austin. He was just completing an 11-month assignment and has returned to his home in San Francisco. Working for a consulting engineering organization in San Francisco, he was with their Bangkok office which employs 18 American engineers and about 30 Thai engineers and draftsmen. The principal activity there is the redesigning of the electrical distribution for the City of Bangkok, which he says: "had gotten into a deplorable condition due to rapid load growth since the end of World War II. The system is now so overloaded that every home of any size must have a booster transformer to raise the drooping line voltage from around 90, up to the required 120 volts. Construction of the new system will start soon and in about two years a new 75,000 kilowatts steam plant, designed and built by a Philadelphia concern, will take over the electric load of the city, now being supplied by a couple of decrepid steam plants and several widely scattered diesel generating plants. My job is the approval of drawings for a small steam electric generating plant (12,500 kilowatts) being built in northern Thailand at Mae Moh, near Lampang. At Mae Moh there is a very extensive lignite deposit being mined by stripping off a thin overburden. The mine is now producing 450 tons a day but next year will have its capacity more than doubled. The steam plant is being designed and fabricated by a Vienna firm of manufacturers of turbines and generators." There follows a most interesting commentary on living in Bangkok and a warm tribute to the Thai people — which will be deferred to a later issue. Also please note that messages from Art Shuey in Shreveport, La., and Aime Cousineau in Italy will be given in next month's column.

With the announcement that your secretary's fifth grandchild, Edith Bell Shearman, arrived on October 8 in New York City, this concludes the column for the December issue. Your letters and notes are always appreciated. To keep the column full and interesting, send any news or information you may have to Ralph Fletcher (Box 71, West Chelmsford, Mass.) or to your secretary. And now, on behalf of your class officers and executive committee members, I have the pleasure of wishing you all a Merry Christmas and a prosperous and healthy New Year! — HAROLD F. DODGE, *Secretary*, 96 Briarcliff Road, Mountain Lakes, N.J.

'17

The Alumni Officers' Conference in Cambridge on September 11 and 12 brought out a good representation of 1917ers. Those present were: Ray Brooks, class agent, Bill Dennen, Stan Dunning, Lobby, Ray Stevens, Francis E. Thomas, Walt Whitman and your secretary. The Bronze Beaver Award was presented to Thomas K. Meloy. The award read: "His personal and untiring efforts were, in large part, responsible for the success of the Washington regional conference of March 1958." During the Friday luncheon a bombshell was tossed out by Francis Thomas, who has been writing a history of Carlisle, Pa. He claims to have evidence that Daniel Drawdaugh, a resident of the area, was the inventor of a workable telephone. After Alexander Graham Bell saw the model, he found the answer to a problem that had kept him from applying for a patent. He filed his patent before Drawdaugh got around to submitting his. The bombshell hit Ray Brooks (associated with the Bell Labs) who although full of doubts promised to look into the matter. We are waiting for the result of Ray's research.

Walter Pond, who lives in Malvern, Ark., sent us the following about Admiral W. Mack Angas, as reported in the *Arkansas Democrat* on September 16: "The development of the Arkansas River, with establishment of port facilities in Little Rock, would not only be a boom to the economy of this area but also to Arkansas as a whole. This was the observation today of Admiral W. Mack Angas who now heads the graduate program of port and harbor engineering at Princeton University, and who figured prominently in such construction facilities in the South Pacific during World War II. The retired Navy officer more resembles a scholarly professor than the man who commanded scores of Sea-Bees in the South Pacific during the early days of the war."

Harold H. Perry of Yardley, Pa., after graduating from the University of Michigan in 1916, spent one year at M.I.T. getting his M.S. in Mechanical Engineering. He is celebrating his 65th birthday this year. He writes: "For the past 11 years I've been with the management consulting firm of Edward N. Hay and Associates, specializing in 'men and management.' My own specialty has been job evaluation and salary standards. Prior to that, after World War I, I was in management of heavy industry. The engineering background and the business experience have not been lost in consulting, a good deal of which has been with technical industry. I haven't retired, and don't intend to do so entirely, but I am tapering off and do things on my own when it doesn't interfere with clients' interests. A good deal of my time and interest is devoted to various activities of the Society of Friends, particularly right now to a community center which our Meeting has established in nearby Trenton." Harold writes further that at a recent gathering at his home there were seven adults and seven children. Harold's wife died in 1952.

Another 1917er approaching his 65th is Clarence Auty of Melrose, Mass. He writes: "After about 37 years with the New England Electric System in the north Boston area, I will retire December 1. Providing electric supply for this area, and seeing it grow, have been intensely interesting and rewarding. However, all prospects point to the probability that we have not seen anything yet — the best is yet to come. I have become increasingly interested the last few years in color photography, and with a little greenhouse, and the garden, I find interesting and mild exercise. Our three children (including Robert'48) have provided seven grandchildren, whom I find most interesting."

The obituary column has claimed two more of our classmates: Mason Locke Weems Craig of East Columbia, Texas, who was at the Institute only one year, died on August 30. Irving B. Crosby died on September 18. He would have been 69 years of age next January. Irving was a consulting geologist and traveled extensively over the world in connection with his business assignments.

We knew that the "Spad" pursuit plane that Ray Brooks used in World War I is in the Smithsonian Institute in Washington, D.C., but we did not know that rarely a week goes by without Ray receiving at least one letter asking some questions about the plane or his experience in it. These questions are mostly from youngsters. Ray is with the Bell Telephone Labs in the New York area, and, if you do not know it, is our class agent.

Last month we commented on Stan Dunning's visit to John DeBell's research laboratories at Hazardville, Conn. John, who was in Russia at the time, is now back on the job, and writes: "I have been in Russia, and enjoyed the exercises at the opening of the American Exhibition. Mr. Nixon certainly left Mr. Khrushchev groggy on the ropes. I also had a brief go at Tashkent, Georgia, and the Black Sea, but did not get as far toward Tibet as Ken Bell in his pursuit of the agile sheep. Although we accomplished the missions in Moscow, I must say that the Czechoslovakians showed less reserve and less time consumption in their dealings. You can tour Czechoslovakia via motor car without any serious handicap if you get a proper visa first, while Russia has a few more restrictions. All in all, I felt the Russian education system and the Russian jets were quite superior. Although their scientific work in my field (plastics) is progressing, the actual plastics industry seems to be about where we were 10 years ago. The government has secured an excellent hold on its people by the same means used by Hitler. They encourage them to have a wholesome respect for hard labor. Some progress is being made toward housing, and haircuts cost 20 cents." (Secretarial aside: the last part of the quotation may be of interest to grandsons only.)

Clair Turner, Professor Emeritus in Biology and Public Health at M.I.T., who spent a year with the Class while he

garnered extra degrees, has been awarded the Gold Medal of the Academy of Medicine of France and also the Great Cross of the Order of Merit of the West German Republic for distinguished service in the field of health education. Clair works with the United Nations Health Organization and the affiliated International Union for the Health of the Public. As this is written he is about to fly to Geneva to spend a month preparing for a meeting of the U.N.H.O. In fact, he was having what any of us would call a strenuous week. He had flown from St. Louis, sitting up all night. He was fog-bound in New York on Wednesday so got to Boston in the small hours by bus, and Friday night was to sit up en route to Geneva. (These 1917ers approaching 70 do get around.)

Here are a few random notes: Tubby Strout is back home in New England. He took nearly a month to drive East, stopping to visit his daughters, dropping some cash at Las Vegas, and seeing points of interest along the way. He wants to locate in New Hampshire, and keep himself occupied in some small business. Lobby and Mrs. L are in Europe and do not expect to return to Cambridge until mid-December. Sully (William A. Sullivan) is working on his new home in Beechwood, N.J., near Toms River. Sully is trying to get riparian rights so that he can get a boat and have waterfront privileges.

The annual report of the M.I.T. Alumni Fund shows that 1917's 175 contributors are 47 percent of our active enrollment of 370, but 1915 and 1916 top us with 51 percent and 50 percent. Of the five classes, 1915 through 1919, our average contribution of $39 compares as follows: 1915—$72, 1916—$73, 1918—$57, 1919—$139. Class agent Ray Brooks' letter of October 1 announces the beginning of the 1960 M.I.T. Alumni Fund. We're not all rich, but we can all participate in showing M.I.T. we appreciate our opportunity to be counted as Alumni.

It is difficult on October 12 — the date these notes are being written — to project one's self to the middle of December when you will be reading these notes, however your class officers wish to extend most cordial season's greetings to all. Meeting the limits of editorial propriety presents a problem in providing the best smile of the day. The following is headed *Art Appreciation* and is credited to "Philnews": "At the art exhibit in the park (it could have been Boston), a gentleman gazed rapturously at 'Spring,' a large oil painting of a shapely girl dressed only in a few strategically arranged leaves. Suddenly the voice of his wife (who never did understand art, anyway): 'Well, what are you waiting for — autumn?' " — W. I. McNeill, *Secretary*, 107 Wood Pond Road, West Hartford 7, Conn.; Stanley C. Dunning, *Assistant Secretary*, 21 Washington Avenue, Cambridge 40, Mass.

'18

There is surely a ruling spirit in the universe. According to the age old story in Genesis, the first command which came from that spirit was, "Let there be light!" And because we too try to be creative, men have assumed that there is a bit of divinity in all of us. Albert Walker, for example, is still at it, and in the area of light. During the late war, as one of the creative men at the Bell Labs, he helped to develop the Sonar Eye which could see under water and locate enemy submarines. Of late, Albert has been increasing light in another way by reading to his friend, Arthur Preikschat, who lost his sight in an accident eight years ago. Since his retirement from the Bell Labs, Walker has been pursuing his own enlightenment in such areas as a study of vitamins. To top it all off, the white-haired doctor of philosophy lectures to a variety of audiences, showing movies of his research on crystals as he did at our 35th reunion six years ago. For my enlightenment on the above details I am indebted to Carole A. Clarke, Secretary of the Class of 1921.

Some of the ruling spirits in the United States endeavored to influence the ruling spirit of the U.S.S.R. while he was here, on the occasion of a meeting at the home of ex-Governor Harriman. Among the 27 prominent citizens included in the capitalistic guest list was our own William C. Foster, Vice-president of Olin Mathieson.

Johnny Kilduff has been so outstandingly the ruling spirit of the Alumni Fund in his area that he received the 1959 Bronze Beaver Award at the Alumni Officers' Conference in Cambridge last September. The citation read: "President of his class and chairman of the Newburyport region in the Alumni Fund which, for the past two years, he has led to a perfect 100 percent participation." The Class congratulates you, Johnny.

Pete Sanger has been disseminating light concerning our 50th reunion fund, in pursuance of which all the brethren have been circularized. Our contribution compared to 1917's is not exactly magnificent, but compared to 1919's (also a war-torn class) is adequate. With a light burning in his eye, Pete expects our 1968 anniversary gift to be something to be proud of. He points out that before you have feeling in your wallet you must have feeling in your heart. So be benignly productive! Pete also asks that anyone who knows the whereabouts of the following nomadic brethren, please forward their addresses either to the Alumni Office or to the class secretary: James C. Irwin (last known address Kansas City, Mo.); Dr. Stanton L. Burgess (Boston, Mass.); Elmer Johnson (Stoughton, Mass.); Frank Moore (Lincoln, N.H.); Elliot Daland (Morton, Pa.).

Harry J. Coyne, co-owner of the Sterling Fibre Company of Waltham, died on July 5. Clarence H. Dagnall suffered a heart attack on August 15 at his summer home in Point Pleasant, N.J., and died. He had been a member of the Bell Telephone Laboratories, Inc., technical staff, at Murray Hill, N.J. Clarence taught electrical engineering for seven years at Cornell before joining the Bell Labs. He is survived by his wife, two sons, and five grandchildren.

Lester C. Conner was a director of research for the Bryant Chemical Corporation at North Quincy, Mass. He died on September 2. Aram G. Paul, better remembered by his Course I classmates as Aram Boghossian, died in Astoria, N.Y. — no date given.

There is a quenchless vitality in the way new life keeps arising from that which subsequently dies, as my garden and my woods are continually reminding me. "Let there be light!" and there was also love. — F. Alexander Magoun, *Secretary*, Jaffrey Center, N.H.

'19

We have just received word that Louis J. Grayson has been named treasurer of the National Association of Life Underwriters. N.A.L.U. is engaged in various educational, legislative, and public relations activities on behalf of the country's life insurance salesmen. A native of Hartford, Conn., Grayson served as a Lieutenant Colonel during World War II and had charge of life insurance in the Army and later in the Air Force, on a policy level. Charles A. Chayne has written an article entitled "On the Importance of Drafting in Engineering Development," which appears on page two of General Motors' *Engineering Journal* for April-May-June, 1959.

Nelson A. Bond, who is with the American Telephone Company in White Plains, had a gall bladder operation this spring, but has recovered nicely. He and Marian have recently moved from Bedford, N.Y., to an apartment in Scarsdale. Charlie and Martha Farist were both ill last winter, but are feeling much better.

The 1959-1960 Alumni Fund drive has started. Chairmen were appointed in all the principal cities. You will also be hearing from our class agent. Be sure to send in your Alumni Fund contribution for this year.

The first Friday of the first full week of each month is the date of the 1919 luncheon reunion at the New York M.I.T. Club at the Biltmore. We hope you will join us if you are in the city. — Eugene R. Smoley, *Secretary*, 30 School Lane, Scarsdale, N.Y.

'20

Time flies! The big 40th reunion is now only a few months away and soon you will be hearing from Chairman Burrows as to time, place, and all other pertinent detail. This time, not so many of us will have the excuse of having to attend graduation exercises for sons or daughters, and likewise, not many of us will be attending such exercises for grandchildren, so let us all promise ourselves to be on hand for this great and significant reunion.

Word has just reached your secretary of the death of Fred Gill in Gloucester, Mass., on September 19.

Your secretary had occasion to talk with the home office of Metcalf and Eddy in Boston and inquire as to the whereabouts of Ned Murdough. He is with Metcalf and Eddy but is located at a Wilmington, Del., address: 134A Thomas Drive, the Munroe Park Apartments. Interesting news of George Manning was gratefully received. George is now a Professor Emeritus of the Institute. In May 1957 he went to Brazil at the request of the Navy De-

partment of that nation to supervise the establishment of a department of naval architecture and marine engineering in the school of engineering at the University of Sao Paulo. George has completed the work of organizing the program and is back in the United States. For his successful work there he was awarded the Distinguished Service Medal by the Minister of the Navy of Brazil, the first such award ever made to a foreigner and the first for work in a civil capacity. He was also given the title of Professor Emerito by the director of the faculty of the school of engineering. This, again, has never been awarded to a foreigner. George is now retired at his home in Osterville, Mass. Phil Young, who has been with Esso Research and Engineering Company for 37 years, has been named patents counsel, responsible for advice on patent matters and for special patent studies. For many years Phil was manager of the patent division for the company. His home is at 575 Highland Avenue, Linden, N.J. Ken Clark of Timber Trails, Sherman, Conn., has recently become a member of the Johns-Manville Quarter Century Club. Ken is vice-president of Johns-Manville Sales Corporation and general sales manager for Dealer Building Products. — HAROLD BUGBEE, *Secretary*, 7 Dartmouth Street, Winchester, Mass.

'21

If you have already returned the questionnaire enclosed with your secretary's letter of September 24, 1959, many thanks for your help and generous support of class activities. In case you have delayed replying, answer now and let your various committees know your wishes. Your biographical data is needed to update class and Institute records and your voluntary check will be especially welcomed to provide the wherewith to carry on these class activities, since we have no regular dues. Before it gets sidetracked in that mass of holiday mail, complete and return the questionnaire form as you read these notes. Additional copies are available on request to your secretary.

The large response to the November cocktail party of the Class, held at the Faculty Club at Technology, indicates the success of the initial fall gathering of those in the New England area. We will report details in next month's notes. Edwin T. Steffian, Boston architect, assistant secretary of the Class and chairman of the cocktail party committee, writes that he has been busy with many extra-curricular duties. Ted has been re-elected President of the Boston Society of Architects for a two-year term. He is looking forward to the day when his two sons, both architectural graduates of the University of Pennsylvania and both now in military service, will be able to join him in his architectural offices.

The 1921 reunion in Mexico, coming hard on the heels of the outstanding 1921 reunion in Havana in 1958, has stirred up so much interest at this stage that its success is already assured. Scheduled for next March 10, 11, and 12 as an adjunct to the 12th annual Fiesta of the M.I.T. Club of Mexico City, it offers an ideal winter vacation in the comfortable climate of Mexico's 7,500-foot-high central plateau. The tentative schedule calls for reunion, cocktails, and luncheon with a "stein on the table" on the 10th; cocktails, luncheon, and surprises on the 11th; a colorful "Noche Mexicana" under the stars on the 12th; and possibly a special 1921 event to be added for the 13th. Additional mailings will go only to those who have indicated a desire for them on the questionnaire enclosed with your secretary's letter, so mark it now and send it back pronto. Viviano Valdés of Mexico City has already written that he will be on hand to greet his classmates, as will our other member of the M.I.T. Club of Mexico City, Manuel Sandoval Vallarta. Chick Dubé's committee will see to it that you get assistance for hotel accommodations and side trips.

An interesting coincidence is related by Joseph L. Gillson, chief geologist of E. I. duPont de Nemours and Company, Wilmington, Del., who writes that he will be with us in Mexico, since he has just accepted an invitation to speak at the Mexico City section of the American Institute of Mining, Metallurgical and Petroleum Engineers on March 14. Joe was vice-president of the A.I.M.M.P.E. from 1951 to 1954 and from 1956 to 1958. He is now president-elect and will take office in 1960.

Mel Jenney, chairman of our 40th reunion committee, writes that he will soon release preliminary information on the site and preliminary program for the unusual gathering in 1961 at the time of M.I.T.'s centennial observance. This will be an exceptionally fine time for you and your family to come back to Tech, especially since our reunion will be close enough to Cambridge to permit taking part in both celebrations. We will be the first class to be signally honored in the new plan to recognize 40-year classes. Technology's celebration of its 100th anniversary will provide a most attractive homecoming for those who have been back often or seldom. Watch your mail and the notices in The Review. In preparation for our special gift to the Institute on that memorable occasion, you will soon be hearing from Irv Jakobson, chairman of our 40th reunion gift committee, who is co-operating closely with Mich Bawden, chairman of special giving, Ed Farrand, our class agent, and Larc Randall, assistant class agent.

Late in September, we had a welcome note from Helier and Graciela Rodríguez of Havana, mailed from Idlewild Airport, New York, saying: "We are here at Idlewild, about to take a plane for Lisbon, where we will stay for four days. Then to Madrid for two weeks, Rome for three weeks, Paris for four days and back to New York in mid-November, when we will try to see you." As we prepare these notes, we have just returned from the October meeting of the M.I.T. Club of Northern New Jersey to hear a splendid talk by Alfred E. Perlman'23, President of the New York Central System. Joe Wenick, perennial treasurer of the club, was also there, as was last year's president, Sumner Hayward. The club celebrates its 25th anniversary next March 15 and we look back with pleasure to the activities of the several '21ers who helped found it.

Honors have come to Harry P. Field, of Honolulu, Hawaii, who has been appointed a member of the 1961 Tokyo convention committee of Rotary International. James R. Cudworth received a doctorate in science from the University of Alabama last June. He is dean of the College of Engineering and director of the School of Mines at Alabama. Ernest Henderson, President of the Sheraton Corporation of America, was honored by Boston College with a doctorate of law.

Paul L. Deylitz reports he has moved from Park Forest, Ill., to a new home at 2628 Sarda Way, Rancho Cordova, Calif. Edward W. Sherman, Jr., is now associated with John A. Dailey, real estate, in West Milford, N.J. The Alumni Register reports that mail has been returned for the following and requests that you notify your secretary if you have current addresses for these classmates: Dr. Axel G. H. Andersen, Oscar R. Duyos, Albert E. Golding, Marshall E. Pridmore, Isadore H. Rogovin and Sidney Turkel.

Death has come to five members of the Class. On behalf of all of us in 1921, we extend to their families our sincerest sympathy.

Milton Wood Deisley of Lancaster, Pa., passed away on January 18, 1959. A native of Lancaster, he was graduated from Franklin and Marshall College in 1919 with a bachelor of science degree and was associated with us in the junior year in Course V. He had been with Gibbs Metal Container Company of Columbia, Pa., a research chemist with E. G. Budd Manufacturing Company, Philadelphia, Pa., and the manager of Moore Dairy, Inc., of Lancaster. He is survived by his wife, the former Serena G. Moore; a son, William J. Deisley of Lancaster; and two grandsons.

James Burrell Keith of Abington, Mass., died on March 23, 1959. Born in Boston on March 9, 1897, he prepared for Technology at East Bridgewater, Mass., high school. He was associated with us in Course X and also attended Northeastern. During World War I, he was a private in the Student's Army Training Corps at M.I.T. Since 1922, he had been with the Brockton Edison Company, most recently as a lines engineer. A member of the board of directors of the Abington Savings Bank, he was also a past president, secretary, and charter member of the Abington Rotary, lieutenant and charter member of the Old Colony Power Squadron, a member of the Scituate Harbor Yacht Club and engaged in a number of community activities. He is survived by his wife, the former Mizpah Buckingham of East Bridgewater; two daughters, Mrs. Patricia Buckingham Schneider, Cornell'48, and Mrs. Carolyn Burrell Cramp, Cornell'50 and Syracuse '52; and a granddaughter.

Hugh Davis Seaver of Grayling, Mich., died there on May 21, 1959. A native of Cleveland, Ohio, he was associated with us in Course IV. During World War I, he was a second lieutenant of field artillery. For many years he had been an architect in Cleveland.

Ormond Wesley Clark died at his home in Whitehouse Station, N.J., on August 24, 1959. Born in Lawrence, Mass., on May 14, 1899, he prepared for the Institute in Lawrence schools and was graduated with us in Course XIV. In World War I,

he was in the Student's Army Training Corps. In 1930, he received the master's degree in chemistry from Columbia University. After several years in the textile industry, he became associated with the then Calco Chemical Company, later to become a division of the American Cyanamid Company, where he was engaged in technical service as assistant manager of the dye application laboratory and also in the organic chemicals division. He had published more than 15 technical papers on dye applications.

He was a member of the following societies: the British Society of Dyers and Colourists, the American Chemical Society, the American Association of Textile Chemists and Colorists, and the M.I.T. Club of Northern New Jersey. He is survived by his wife, Helen Treadwell Clark; a son, Merrell Wesley Clark of Middlebrook, N.J.; a daughter, Marjorie T. Clark, at home; a brother, James L. Clark of Wilton, Conn.; and a grandson.

Daniel Murdock MacNeil died on September 1, 1959. Born in Grand Narrows, Cape Breton, N.S., Canada, on January 31, 1895, he was graduated from St. Francis Xavier College, Nova Scotia, with an A.B. degree in 1917 and joined us in that year at Technology, where he was graduated in 1921 with the S.B. degree in Course III. At the Institute, he was a private in the Students' Army Training Corps during World War I and achieved fame with his brother, John, of our Class as members of the championship freshman hockey team. He was associated with the American Smelting and Refining Company, Leadville, Colo., the Crucible Steel Company, Midland, Pa., and the American Metals and Refining Company, Carteret, N.J., before joining the Wheeling Steel Corporation in 1925. He had been with Wheeling continuously since that time and, since 1942, was district sales manager for the New England area. He was a member of the Boston City Club, the Weston Golf Club, the Canadian Club of Boston, New England Iron League, past president of the New England Heating Trade Association and former director of the Catholic Alumni Sodality of Boston. He is survived by his wife, the former Elinor Bishop; two daughters, Mrs. Anne Sokol, Regis College, of Wellesley, Mass., and Mrs. Jane Banks of Upper Montclair, N.J.; a son, Dr. Donald MacNeil, McGill University, of Santa Barbara, Calif.; and four brothers, John J. MacNeil'21, of Grand Narrows; Neil A. MacNeil'23 of Holyoke, Mass., Hector MacNeil of Toronto, Ont., and Joseph MacNeil of New York City. We are indebted to Miss Vera Keane, office manager at the Wheeling Steel Corporation, Boston, for her aid in preparing these notes.

Help make the holidays particularly enjoyable for your class officers and committeemen by returning the questionnaire to your secretary today. All of us extend the very best Season's Greetings to you and your family. — CAROLE A. CLARKE, *Secretary*, Components Division, International Telephone and Telegraph Corporation, 100 Kingsland Road, Clifton, N.J.; EDWIN T. STEFFIAN, *Assistant Secretary*, Edwin T. Steffian, Architect, 11 Beacon Street, Boston 8, Mass.

'23

Your class officers wish you all a very Merry Christmas and a happy and prosperous New Year.

Your class officers, together with several other members of the Class attended the third Alumni Officers' Conference held at the Institute on September 11 and 12. This was a most interesting session and one comes away with a feeling of pride to be associated with an institution the caliber of M.I.T. A general session was held in the Kresge Auditorium Friday morning and separate workshop type sessions in lecture halls in the afternoon. A cocktail party at President Stratton's home was followed by a dinner at Walker Memorial. We were all quartered in one of the new dormitories, Baker House, and from the looks of it the students these days have the best. Saturday morning started with more workshops, followed by lectures in the auditorium of the Compton Laboratory and ended with luncheon in the Faculty Club dining room. Those in attendance from your Class included: Horatio L. Bond, Herbert L. Hayden, Edward J. Healy, Forrest F. Lange, Albert S. Redway, Howard F. Russell, David W. Skinner, Julius A. Stratton and Hyman J. Verner.

Hyman J. Verner came to the conference direct from a vacation on Cape Cod and Marblehead. Currently he is chief engineer for the Eastern Stainless Steel Corporation in Baltimore and is also president of the M.I.T. Club of Baltimore. Phil Coleman was presented the Bronze Beaver Award by Edward J. Hanley'24, President of the Alumni Association, at the October 3 Alumni Officers' Conference in Chicago. The citation reads: "Past president of the Chicago Club, special gifts metropolitan area chairman for his Class, and long-time regional chairman and educational counselor, whose thorough and conscientious reports throughout the years have been of great assistance in determining the qualifications of a great many prospective students."

I would like to add a few more items, to supplement last month's notes, about our good friend Tex Beretta of San Antonio. Tex's son is currently a student at Williams College in western Massachusetts. Just before Tex returned to a semi-active business life he published a very interesting booklet, about the story of Banco Nacional de Texas, which he distributed to many of his banking and business associates. He sent your secretary a copy for which I was very grateful. Another interesting bit of news from San Antonio is that the Beretta's Georgian colonial home was one of six opened to the public last spring for a garden pilgrimage sponsored by the Christ Episcopal Church. Highlights of Tex's home include: Eighteenth Century English furniture in the dining room, silver pieces by Paul Starr, Mrs. Beretta's collection of onion pattern Meissen, the log cabin pattern of the playroom, the bar decorations, and other beautiful and interesting pieces throughout the house.

Dr. Dorothy W. Weeks delivered an illustrated lecture on September 26 on the International Federation of University Women Conference held in Helsinki last August. The lecture was in the Hayden Library Lounge of M.I.T. and the occasion was the opening meeting of the fall season of the Boston Branch of American Association of University Women. For seven years Dr. Weeks was chairman of the International Grants Committee of the A.A.U.W.

Your secretary-treasurer has been busy the past few months with a few extra curricular items, in addition to guiding the destinies of the Du Pont plant in Leominster. As usual, tennis occupied a large part of the summer months with participation in a few tournaments and team matches. Had a lot of fun and exercise but was on the losing end most of the time. Mrs. Hayden, our youngest daughter, Marjorie, and a couple of friends spent a very pleasant few days in early September sailing around Buzzards Bay and Nantucket Sound on the schooner Tradewind. Needless to say we had a grand time. Since last reporting on my activities I have been appointed to the governing board of the Unitarian Church and the housing authority, both in Lancaster. Alaska seems to be the topic of the day and your secretary had a busy schedule in November particularly, giving five illustrated lectures on the 49th state to church, PTA, and club groups.

We are very sorry to report the death, on September 24, of Dr. Bernard E. Proctor, head of food technology at M.I.T. since 1952. He was widely known as a food technologist and had been active for the past 20 years as a consultant on food problems. During World War II he was consultant on foods to the secretary of war and director of subsistence and packaging research and development for the quartermaster general. Bernie was one of the more active members of our Class, always willing to help, and he will be greatly missed. Your Class was represented at the funeral chapel by Mr. and Mrs. Hayden and we sent Mrs. Proctor a bouquet of flowers from the Class. A note from Mrs. Proctor reads as follows: "Please accept my deep thanks to you and the Class of 1923 for the beautiful flowers and the stein. How nice to have done it that way. More than ever I cherish the portrait of Bernie given to me by the Class."

Another distinguished member of our Class, Walter F. Munford, died on September 28. Walter took over the position of president of the U. S. Steel Corporation last May. He was also a member of the Board of Directors and chairman of the Executive Committee. He was a native of Worcester, attended Worcester Polytechnic Institute and completed his engineering education at M.I.T. He had been associated with the U. S. Steel Corporation since graduating from M.I.T. in 1923. — HERBERT L. HAYDEN, *Secretary*, E. I. du Pont de Nemours & Company, Leominster, Mass.; ALBERT S. REDWAY, *Assistant Secretary*, 47 Deepwood Drive, Hamden 17, Conn.

'24

Just in case you think that reunions and talk of reunions are over for a while, you should know that President Atherton has:

1) signed up Oyster Harbors Club tentatively for our 40th; 2) started the ball rolling for our 40-year reunion gift. It will be here sooner than you think! Now let's see what else has been happening.

First, a few business changes. William H. Correale is no longer a public servant. He had worked for the City of New York since 1936, with time out for a war. For the last five years he had been boss of the city's school construction program. Now he returns to private practice as Executive Vice-president of Depot Construction. Bill took a bit of time off in September and came up to the Alumni Officers' Conference. Thought he ought to get the straight dope, because he's also another kind of V.P. now, in charge of general programming for the M.I.T. Club of New York.

"We are pleased to announce that Mr. Gordon Y. Billard has this day been admitted to general partnership in our firm," said a formal announcement from Carreau and Company, a New York brokerage concern. Another formal card from Warren E. Hill Associates, Inc. (N.Y.), says, "I am now an operations consultant for the Thermoid Division of H. K. Porter Company, Inc., and broadening this service as management consultant, specializing in operating problems of business." Sounds like sort of a broad field of specialization. And Warren is not the only one. Who should pop in the door last month but our ex-President, George E. Parker, who has shaken the soil of Europe from his feet and is back home in Newburyport. After a strenuous bout that kept him in the hospital the early part of the summer, George decided there was no place like home and has now gone into business for himself. Final new business item: Bomac Laboratories, Inc., of Beverly (Mass.), announces that Cyrus W. Haller has joined the company as general sales manager. Cy had been president of Pioneer Electronics and, after a merger, of Victoreen Instruments of Cleveland.

Just to show that not everyone is changing jobs, here are a couple of other news items. "Charles O. Duevel, Jr., has been honored with presentation of a 30-year pin. All of the local officials of the (American Thermos) company witnessed the brief ceremony." Cy is first V.P. and assistant general manager.

James Enright not only got a pin on his 35th year with Firestone, but $100 to boot. Jim was a member of the company's first College Training Class and six of them were still on the job in July to get their pins. Jim spent a good many years in Brazil and Argentina, but for the past five years he's been back in Akron on special auditing projects for Firestone's foreign plants.

Then there's President Atherton who, in August, celebrated the 25th anniversary of his association with New England Mutual. Don't know how you observe such an occasion when you're head man. Did he present himself with a pin? Or did Kay pin him? And the Barretts, in celebration of Frank's 35 years with New England Tel. and Tel., gave themselves a trip abroad. A card from some place (is it Riproduzione vietata?) in late September said: "Kay and I still celebrating the 35th. Came here via Brenner Pass after touring Swiss and Austrian Alps. Previously been in England and West Germany. Now on the way to Venice, thence to Rome and Paris, and home on the *United States*."

Here are people joining or starting new businesses or continuing on with old ones — all summer long and not a single notice of a retirement. Is this sort of thing seasonal? Is it the long cold winters that finally get to us? Must remember to make a chart sometime.

Manchester, Mass., has a big new school building program, and after long and careful study the committee has retained the architectural firm of Whelan and Westman. Now that Freddie Westman is a North Shore resident he probably wanted a job near home to save travel time. For those of you who haven't been around Boston recently, travel into town from either the North or South Shores is nothing to be taken lightly these days. You probably noticed a new name on the bottom of your first class agent's letter this fall, Freddie's. He and Frank Shaw have teamed up for the job.

For the first time in all these years we have a news item about Theodore W. Kenyon. Ted has had a very varied and colorful career, but somehow he has kept out of the news. And now, of all things, it's because he made a speech — probably his first one — to the Rotary Club of New London. Ted has been an aerial photographer, flyer, electrical engineer, but primarily an inventor. This is what he was telling the Rotarians about: "An inventor is sometimes called crazy. It helps," he is reported as saying. The president of the Kenyon Laboratory in Old Lyme, Conn., says he is now working on a new gyro control for aerial photography which will permit continuous strip vertical photography regardless of the angle of the airplane. He'll do it. Incidentally, Ted has reduced the commuting problem to a point approaching zero. He leaves home in the morning, waving goodbye to his wife, Teddy, as he crosses the back lawn, pushes through a hedge and in about 75 yards is in his office. He can come home for lunch (if he remembers it — he's an inventor) with no lost time, and the cocktail hour is only moments away from his desk. Sounds rather idyllic for those of us who spend a couple of hours a day in travel!

Hate to end this column on a sorry note, but there are two members of the Class who are no longer with us. Captain James G. McPherson, USN, died last December. And Tom Boeke, a lawyer of Redmond, Ore., died two years ago. There are no details on either one.

Matter of fact, we won't end on this note. Here's the postcard summer log of Simonds the Sailor, starting in May: Venezuela, "Just after a $1 million fire. Tropical heat here." June: Newfoundland, "Here after trip beyond Arctic Circle at Greenland. Do you ever stay in your office?" June later: Texas. (That was a very unimpressive card of the Freeport City Hall — looked like a deluxe filling station.) July: Newfoundland, ". . . and now, Goose Bay, Labrador." August: Thule (can't read his hurried scribbling on this one, but it's a beautiful picture of an Eskimo and his dog sled — something Thule hasn't seen for years). August, later: Goose Bay, Labrador (a B-52 over snowy mountains). And finally, September: Boston. Harvard Bridge! "An excellent view." Had a call from Hank that night, late Saturday after I'd gone to bed, so never did get to see him. Henry gets around. So long until next month.—HENRY B. KANE, *Secretary*, Room 1-272, M.I.T., Cambridge, Mass.

'25

Our Class suffered a severe loss with the sudden death on September 18, 1959, of Henry F. McKenna, Jr. Mac had suffered a heart attack early in July and appeared to be well on the road to recovery. After visiting his doctor on the 18th, he started to drive home, had another attack while en route, and passed away before reaching the hospital. As all of you know, Mac had a great love for the Institute and for the Class of 1925. He had played an active part in our reunions in 1950 and again in 1955, and had already spent a considerable amount of time in planning for our 35th coming up in June, 1960. The letter which you received from Fred Greer gives fair indication of the amount of planning that Mac had already accomplished. A new reunion chairman has not been appointed as yet, but his job is going to be greatly reduced by the ground work which has been completed. In addition to Mac's work with the Class of 1925, for the past several years he has been an associate member of the Alumni Council and a regular attendant at the meetings. Here are a few facts about Mac that many of us perhaps did not realize. In addition to his engineering background acquired at M.I.T., he went on to obtain both the LL.B. and LL.M. degrees from Suffolk University Law School; and with this combination of law and engineering training he was one of the most highly respected employees of the Employers' Group of Insurance Companies of Boston. He was most active in the safety programs of his company as indicated by the fact that he was a member and past president of the Boston chapter of the Veterans of Safety, vice-president and chairman of the executive committee of the Massachusetts Safety Council, vice-president of the Insurance Fleet Safety Association of Boston, and a member of the Accident Prevention Committee and the Rating and Accident Prevention Bureau of Massachusetts. The sympathy of the entire Class goes out to his wife, Thelma, known to many of you because of her activities in connection with the reunions. In lieu of flowers, Thelma requested that gifts be made to the M.I.T. Alumni Fund in Henry's name. Perhaps some of you, even at this late date, would like to make an additional gift to the Alumni Fund this year in memory of a most loyal Alumnus and class member of 1925.

The third Alumni Officers' Conference at Cambridge in September, and repeated in Chicago on October 3, brings some news from class members. Mal Davis wrote in to indicate his absence from the Cambridge affair was caused by a work pile-up resulting from a trip to South America. Jim Elliott came down from Minneapolis to the Chicago meeting, and it was a pleasure to renew our acquaintance and discuss M.I.T. of 1925.

An item from the *Boston Herald* a few days ago indicates that Mrs. Mary Morrison Kennedy has recently been named as a Vice-president of the Sheraton Corporation of America.

My secretary just reminds me that possibly some of you might be interested to know that I have been appointed acting director of the Lowell Institute School for this coming year, taking over the administrative responsibilities of this evening school, following the death of Professor A. L. Townsend'13. — F. L. FOSTER, *Secretary*, Room 5-105. M.I.T.

'26

It's a beautiful fall morning here at Pigeon Cove so I've allotted only one hour to class notes. Actually it's Columbus Day, a Massachusetts holiday, and from now on there will be very few holidays that will permit outside work. Yesterday, Gunner and I hung the two Star boat masts under the roof of the guest house porch. I'm sure the porch was built before the first Star boat (1911) but the builder had terrific foresight. By making the porch 33 feet in length he made it 2 inches longer than the mast and left shelves which support the foot of the mast at one end of the porch and the tip at the other. You may recall that two years ago a friend offered to let me winter the boat in his garage which I found was six feet shorter than the boat. "O.K. — then saw a hole in the back and let the bow stick through," was my friend's reply. I took him literally but I could not leave the bow unprotected so I built a weatherproof cone from homasote and fastened it over the hole. It's no architectural masterpiece but it faces the woods and it does keep the snow out. Well, let's get down to business.

I have a letter about Corb Hoffman from classmate Ken Lord, who is president of the M.I.T. Club of Philadelphia: "I'm sorry to have to forward you the notice of Capt's death from leukemia. Even though he was failing for the past year, he worked hard as one of the top engineers in the Atomic Energy Division of Budd Company. He was a member of our M.I.T. Club of Philadelphia and worked on our solicitation drives. He left a wonderful family consisting of his wife and two teenage daughters. Please let the fellows know."

Another Philadelphia news item comes as a clipping from the *New York Times* and refers to classmate Dick Jones and we quote: "Mrs. Charles Louis Gregg Starn and Henry Williams Jones of Chestnut Hill, Philadelphia, were married this afternoon in the Beverly (N.J.) Presbyterian Church by the Reverend John B. Smiley."

These two clippings bring to mind the fact that I am a fairly frequent visitor to Philadelphia (last week and the week before) but only to the airport. This is the method one uses to commute to Wilmington, Del., these days, all due to an entrepreneur and a Volkswagen bus. About three years ago a fellow started a shuttle service with one VW bus; now there are seven, plus several conventional taxis in the fleet. Consequently, my Philadelphia visits usually consist of a dash through the airport terminal building in one direction for the VW bus and in the other for the plane. I do try to get in an occasional phone call from the airport and I recently talked with classmate Bill Vaughan, and brought him up to date on classmate, Pete Doelger's handsome new cabin cruiser in which he came to Rockport this summer. I also phoned Clifford Abrahamson'25, who advises that he lives about 20 minutes by taxi from the airport so one of these days I plan to detour. I learned from Cliff that he follows the activities in Pigeon Cove by reading the '26 class notes! (Doc Foster — please give credit line if the clipping services give you this item for your '25 notes). On a recent visit to Wilmington I saw Howard Humphrey in an elevator but the doors were closing as I called to him. Thanks to an alert operator the doors reopened and I had a quick chat with Howard in the lobby of the Nemours building. Howard advised that he has been making weekly trips to Boston to visit his youngest son at the Children's Hospital. Mrs. Humphrey is staying in Boston during the treatment period and we hope to get together with them while they are here. I've over run my one hour and there is still a nice letter here from Guy Frisbie about his European trip, but you will hear about it next month. Why don't *you* take a tip from Guy and write us a short note, too? It's such a balmy day that I nearly forgot about the time lag and that these notes will not be published until December — so to all the Class (and to those from other classes, too!) a very Merry Christmas. — GEORGE WARREN SMITH, *Secretary*, E. I. duPont de Nemours and Company, Inc., Room 325, 140 Federal Street, Boston 10, Mass.

'27

An announcement was recently received from Hamilton Management Corporation of the appointment of Major General Frederic E. Glantzberg, USAF, retired, as Savannah District Manager for Hamilton Funds. Fritz will make his headquarters at the DeSoto Hotel, Savannah, Ga.

The annual report of the M.I.T. Alumni Fund was of considerable interest. Our Class' contributions to the fund for many years have been under the administration of Alf K. Berle, with James A. Lyles now acting as special gifts chairman. In the year ending June 30, 1959, 248 or 42 percent of 594 active class members made a total contribution of $16,428, or an average of $66.00 per contributor. Since 1940 our Class has made a total contribution of $114,000 to the Alumni Fund. Certain other specific benefactions received by M.I.T. from 1927, including our 25th reunion gift, bring the total class contribution to $222,000, a creditable showing.

Alfred M. Norton died suddenly September 9, in Portland, Maine. His home was in Wiscasset, Maine, and he had been plant engineer at the Bath Iron Works since 1945. Pete was an active hunter and fisherman in northern Maine woods and a salt-water boatman out of Southport. He was chairman of the board of trustees of Miles Memorial Hospital of Damariscotta. He is survived by his widow, a son, two daughters and eight grandchildren.

I believe we last reported Erik Hofman as working with Esso Standard in Buenos Aires. After returning to New York in 1955, he was appointed Esso's manager in Mexico in 1956, and now lives in Mexico City. I saw him here in New York a few weeks ago and he is the same debonair Erik.

An interesting article (partly paraphrased below) recently appeared in *Control Engineering* giving a summary of Nat Cohn's 32 years with instrument-maker Leeds and Northrup Company. At the start of his career, the electric utility industry was just beginning to use automatic generation controls to supplement conventional speed governors. Practically the only automatic control was for the simple regulation of frequency. Control was restricted to a utility's own system, often to a single generator. Over the years, he has watched this interest mushroom until today U.S. utilities are tied together in complex power pools — all automatically controlled; they load their systems with electronic dispatch computers. Nat has not only watched this advancement in control technology, but he has contributed heavily to it. His greatest contributions were to come in tie-line bias control. In this arrangement, all areas but one were on tie-line bias; the single area controlled frequency, taking up any "slop" in regulation. The big problem was how much each area should be biased — meaning to what extent stations should pick up generation, if trouble appeared elsewhere on the interconnection. Many utilities urged a small bias, fearing they would otherwise upset their own areas or would carry more than their share of the load. In an interpretation of tie-line bias control, presented at a special meeting in 1956 of utility pool groups, Nat analyzed the effect of different bias settings, and derived equations for the magnitude of response. This gave the utility men a basis for agreeing on preferred settings, thus resolving a controversy that had smouldered for many years. The presentation was so outstanding that he was asked to prepare an American Institute of Electrical Engineers paper incorporating it; it won an A.I.E.E. prize that year. Although bias tie-line control solved one part of the power pool problem, how to allocate generation demand to the co-operating utilities, another part of the problem, remained: how to achieve the required area generation most economically. By 1950, utilities were following an approach in which they set one station as a master and related other stations to it. Cohn felt it would be better to relate station programming to total generation rather than one station which might be fast or slow and therefore would make all other stations fast or slow. To solve this, Nat proposed programming reference combining feed-back and feed forward. He was awarded a patent on a system which adds the prevailing total generation (a feed-back) to the power required to meet the area demand (a feed forward) to compute the total desired output of the area. A paper describing this system won an A.I.E.E. prize, and was responsible for his being made a fellow of A.I.E.E. in 1954. —

J. S. HARRIS, *Secretary*, Shell Oil Company, 50 West 50th Street, New York 20, N.Y.

'28

Alumni Day last June was particularly well attended by '28ers. Including the ladies, a total of 25 were registered for the day's events. Nearly all attended the banquet, social hour, and the Boston Pops Orchestra concert. Following is the list: Beryl and Elbridge Atwood, Rose and Maurice Beren, Bill Carlisle, Dorothea and Jack Chamberlain, Dave Donovan, Frances and Jim Donovan, Helen and Roland Earle, Olive and Newton Foster, Helen and Bob Harris, Florence and Ralph Jope, Carrol Smith, Walt Smith, Gus Solomons, Anna and Will Tibbetts, and Ruth and Abe Woolf. If you have not attended an Alumni Day on campus, you should plan to do so. It is a wonderful way to meet with your classmates in an off-reunion year and to catch up on Institute developments.

Gus Solomons is now in charge of electrical testing in the central-technical department of Bethlehem Steel Company, Quincy, Mass. Outside of business Gus is active in Cambridge civic affairs and is a member of the executive board, Cambridge Community Center; member of the board of managers, Cambridge Tuberculosis Association; member of the board of managers of the Mount Auburn Hospital; and member of the executive council for Cambridge, Boy Scouts of America. In 1957, Gus almost made the Cambridge, Mass., school committee; we note that he is running for the office again this year. Our best wishes, Gus — we hope that you make it this time! Son, Gus, Jr., is in his fifth year in the Institute's Department of Architecture. Young Gus has had the Tech Show lead role in each of the past four years and, in addition, was chief choreographer last year. To you both, gentlemen, our congratulations and the sincere admiration of the Class!

The *Patriot Ledger*, Quincy, Mass., August 6, 1959, has given us some interesting news of Eric Hartmann and his family. Eric's sister, Mrs. Aribert Kluth, paid him a visit from Salzgitter, Germany. This was their first meeting in 35 years. The news item also included the information that Eric's daughter, Erica, was married on June 13 to Douglas Crabtree of Needham, Mass. Eric, it pleased us to hear of your family reunion! To the young people, our best wishes for a long and happy life! Bill Hurst has been at it again! This time he has written a highly mathematical paper on "Interference Between Oil Fields" for publication by the Society of Petroleum Engineers of American Institute of Mechanical Engineers. Bill is a petroleum consultant with his office in Houston, Texas. If you think you are a mathematician you must read Bill's paper. As for us, we are completely awed!

Jim Donovan, in his post as Alumni Fund special gifts chairman for the Class, has received a number of letters from classmates. One from J. Gordon Collins informs us that he is now with the Morton Chemical Company in Chicago, Ill. Jay and his wife have just had a new baby daughter! This, we are sure, gives Jay some kind of a record—one which is likely to last! — GEORGE I. CHATFIELD, *Secretary*, 11 Winfield Avenue, Harrison, N.Y.; WALTER J. SMITH, *Assistant Secretary*, 15 Acorn Park, Cambridge, Mass.

'29

As reported in last month's notes, there was a small re-reunion on October 3 at Bald Peak, including Joan and Wally Gale, Clara and Ed Farmer, Kay and Eric Bianchi, Fran and Paul Donahue, Marie and Jim Fahey, Mary and Frank Mead, Helen and Hugh Hamilton, Ellen and Ken Horgan, and Olive and Gordon Williams. Peg and I unfortunately could not attend, but we have a quick run-down from Frank Mead. They convened on Friday night. On Saturday golf was the order of the day. Frank Mead took his dogs off to the woods and reports getting a woodcock and a partridge. Saturday night the whole gang, including Wally's brother Oliver and his wife Mim, and those still at the club, was entertained at the Gales's. In the evening Frank Mead showed slides of the 30th reunion, of which he had taken a great many. He also showed some that Elmer Skonberg had taken.

Frank reports that the weather during the entire weekend was what it should have been in June, real summer weather even though the trees had started to turn. Frank also reports that he saw Elmer Skonberg last week, who was in this area to attend his brother's funeral. Elmer has our sympathies.

A report from the *New York Times* tells of the death of John G. Kirkwood who received his doctorate with us in 1929. John was chairman of the department of chemistry at Yale University. He also taught at Cal Tech, University of Chicago, and Cornell, as well as M.I.T.

Boys, I'm really crying for news. How about some newsy letters? — FISHER HILLS, *Assistant Secretary*, 62 Whittemore Avenue, Cambridge 40, Mass.

'30

We had a note from Al Deyarmond recently. He is working at the Technical Military Planning Operation (TEMPO) of General Electric Company at Santa Barbara, Calif. Jim George (Jim Papadopoulos) wrote to say that back in 1935 or thereabouts he dropped 9/10ths of his name and since then has been known as James George. He said that the change was based on two theories; first, his luck was so bad then that any move on his part was bound to be a move in the right direction; second, no one could properly pronounce his name, anyway. Jim is now with the Bureau of Aeronautics, Department of the Navy, as a guided missiles and weapons engineer. He has a son, Kimoy Theodore George, who is now a freshman at M.I.T., Course XV.

Here are some news items from Bob Henderson. He says that to the best of his knowledge Bernabe Barrios is still operating a rather large cattle ranch north of Tampico, Mexico, and is also distributing certain agricultural chemicals in his area. Denis Agar was in Val d'Or, Quebec, doing exploration work for several companies when Bob last heard from him. Bob says of himself: "It's a bit difficult to describe my own work at the present time other than to say that I seem to be traveling around looking at many mining properties. A few months ago I was named general manager of Western Operations for Climax Molybdenum Company, a division of American Metal Climax, Inc." Bob added that if he ever completely understands all that he is doing, he will certainly try to bring us up to date.

Through a Phi Gamma Delta publication we have received word that Art McCullough is now industrial relations manager of Birdsboro Steel Foundry and Machine Company of Birdsboro, Pa. Charlie Parker of Gorham, Maine, chief engineer of W. H. Hinman, Inc., was awarded a professional degree of civil engineering at the graduation exercises of the University of Maine last June. This information was received by way of a newsclipping from the *Sunday Telegram*, Portland, Maine. The degree was conferred on Charlie for his achievements in the field of civil engineering and his thesis in steel-tired rollers. The last such degree was conferred by the University in 1943. To mention some of his achievements: he made the original design of the airfield pavement at the now famous Thule Air Base in Greenland; he was associated with the airfield pavement construction of Kindley Field, Bermuda; he made evaluations of airfield pavements at Keflavik, Iceland; and he was consultant engineer on the Maine Turnpike, the New Jersey Turnpike, and the Kansas Turnpike. He is the author of many technical articles, and is active on the Pennsylvania branch of the technical committees of the American Society for Testing Materials.

We have best regards from Bill Wye through Jim George, who saw him recently. Bill is, according to Jim, this nation's guardian of important patent matters. He looks well and is still a strong exponent of a marvelous philosophy of self-sufficiency. "He is a true Stoic," to quote Jim. We learned recently that Dick Wilson has been promoted from assistant manager of film manufacturing at Kodak Park (Eastman Kodak Company) to manager, and that Ralph Peters was recently installed as chairman of the New York-Canadian division of the Paper Industry Management Association. We had the opportunity of talking with Ralph and Tony Savina during the Alumni Officers' Conference at M.I.T. this fall.

We have received the following changes of address: Raymond J. Bowley, 13 Dubois Street, Darien, Conn.; Theodore E. Bridge, 231 Villanova Road, Oak Ridge, Tenn.; Robert S. Cook, 2466 West 36th Avenue, San Mateo, Calif.; Russell Fanning, 909 Beachview Drive, Ft. Walton Beach, Fla.; Mrs. Frances Frazier, 411 Margaret Street, San Antonio 9, Texas; Edgar M. Hawkins, Jr., 84 Five-Mile River Road, Darien, Conn.; Allan Intriligator, 21 Virginia Avenue, Freeport, N.Y.; Orland M. Johnson, 4970 Helen Way, Sacramento 22, Calif.; Miss Frances L. Parker, Scripps Institute of Oceanography, La Jolla, Calif.; Charles

H. Small, 3706 Massachusetts Avenue, N.W., Washington 16, D.C.; Myron T. Smith, General Radio Company, West Concord, Mass.; Dr. Joseph R. Stevens, J. R. Baker Chemical Company, 4505 Henry Street, Easton, Pa.; Jonathan G. Swift, 153 Steele Road, West Hartford 7, Conn.; King Tow, 75 Rose Street, Placerville, Calif.; Elroy Webber, 2 Crescent Hill, Springfield 5, Mass.; James R. Winterbottom, Gulf Oil Corporation, 403 Atlas Building, Charleston 1, W. Va.

I take this opportunity to send best wishes to all for a happy holiday season. — GEORGE P. WADSWORTH, *Secretary*, Room 2-285, M.I.T.; RALPH W. PETERS, *Assistant Secretary*, 249 Hollywood Avenue, Rochester, N.Y.; LOUISE HALL, *Assistant Secretary*, Box 6636, College Station, Durham, N.C.

'31

1931 was well represented at the recent Alumni Officers' Conference held in Cambridge early in September. Sam Bensinger, my roommate at Baker House during the conference, is still in Washington, D.C. He and his brother are building houses in the low to medium price range and, judging from his youthful appearance, the work agrees with him. Gordon Brown, Dean of Engineering at Tech, entertained us during one of the luncheons with some of his experiences during the summer. Ralph Davis and Ed Hubbard, who have paired up and done an outstanding job as fund raisers for our Class, were also on hand. Ralph has been spending considerable time in Canada on business lately and was fortunate enough to have his family with him part of the time. Also enjoyed seeing Hal Gurney again. He has his own consulting business in Boston with two others. Bob Leadbetter came up from Montclair and headed off to his place on Nantucket after the conference. He is now with the export department of Curtis-Wright and spends some of his time in Europe. Class prexy Howie Richardson, looking fit as a fiddle, told us he is still traveling as much as ever. He is looking forward to spending more time with his family on the new job as Executive Vice-president of the Stanley Works. John Swanton, our outstanding class agent, had his usual smile, even when he cajoled the rest of us into signing the class letters with him at the end of the conference. All in all, the conference was a great success and it was a pleasure to see so many of our classmates again.

It was a shock to learn of the death of Nicholas K. Lucas of 1 Indian Drive, Old Greenwich, Conn., on August 28. Nicholas had been involved in an automobile accident on the preceding Tuesday and suffered head injuries, but had been released after treatment by the Greenwich Hospital. Our deepest sympathy to his wife, Dorothy, and two children, Nicholas C. and Katy.

The following address changes have been received: John W. Borden, Jr., 388 Sea View Avenue, Swansea, Mass., Edward F. Coy, 10210 Tarpon Drive, Treasure Island, St. Petersburg 6, Fla., and Colonel Fred J. Elser, c/o C. C. Arthur, 5160 Dahlia Drive, Los Angeles 41, Calif. — EDWIN S. WORDEN, *Secretary*, 9 Murvon Ct., Westport, Conn., GORDON A. SPEEDIE, *Assistant Secretary*, 90 Falmouth Road, Arlington, Mass.

'32

This is the time of year when each of you will be contacted by our class agents, George K. Kerisher, XVI, and Donald B. Gilman, X. Many of you will also be contacted by the class representative in your area for the special gifts solicitation. Our Boston local area chairman, Carroll L. Wilson, XV, is already after quite a few of us to make contacts. Please see that our class record for giving climbs because the Institute really needs the help of everyone.

Al Dietz, XVII, spent a good part of the summer in Russia. His activities there are reported in the November issue of The Review. Be sure to see what one of our classmates did for the great fair in Moscow. One of the interesting sidelights was his return from Moscow via Athens and visiting with his two children who happened to be in Corinth on their tour of Europe.

Your secretary needs more information from each of you to make these notes interesting. Otherwise I shall have to write about myself. There will be no class notes for the next issue because your secretary is going to spend a month in Vienna helping the International Atomic Energy Agency set up their program of research and development in the disposal of radioactive wastes. We have been very active here at M.I.T. over the past 10 years in developing processes for the treatment of low-level and high-level wastes from the various activities of the A.E.C. and isotope users. More on that trip later! — ROLF ELIASSEN, *Secretary*, Room 1-138, M.I.T.

'33

Pete du Pont, our class President, was in Cambridge on October 5 for the dedication of the Athletic Center, made possible by David du Pont, Pete's brother. Pete looked as chipper as always. The Center, and all it means to Tech, has been recorded elsewhere in The Review. The remarkable fact — and one for each of us to ponder — is that young David had the perception and the foresight to recognize one of the most urgent of Tech's needs and then took the proper steps to take care of that need. Although most of us are up to our ears in meeting college tuition payments and therefore searching for a spare dollar, the thought of leaving something to M.I.T. is worth a good deal of consideration, not as payment of an obligation but simply to make it possible for young men in the future to get as good an education as we had.

Award of the month goes to Lou Balboni, II, for receiving the Chrysler Quality Dealer Award. Lou operates outside of nearby Norwood; he is a member of the local school building committee and is a former town meeting member. Lou missed our 25th, and for good reason; he was just married! Bob Hentschel, IX, Product Development Manager at E. I. du Pont, got prominent attention with his paper on "Structure-Property Relationships in Synthetic Fiber Papers" at the fall research symposium at the Institute of Paper Chemistry, attended by 200 of the top scientists in the field of paper and pulp research.

Bill Huston, VIII, also presented a paper in June in Holland under the awesome title of "Comparison of Constant-Level and Randomized-Step Tests of Full Scale Structures as Indicators of Fatigue Critical Components." The next time the wings on your plane start to flutter, just think of Bill. Bill reports a number of interesting visits to aeronautical research centers in England, France, and Germany. With five little Hustons on the family payroll, Bill reports they are building a new house. Just one doggone expense after another.

Word, too, from Beau Whitton, XVII, who represented M.I.T. at the inauguration of the new president at Davidson College in North Carolina last spring. Beau's name comes up frequently here in Cambridge for all he does for Tech.

On the move — and we would welcome specifics to share with the Class: Harry Garber, VI, from Los Angeles all the way to MacLean, Va.; John Cashman, XVII, from Clifton, N.J., to Melbourne, Fla., — and when these notes appear we would welcome an invitation to visit you, John!; and Ed Sann, X, from Wilmington, Del., to Lima, Ohio.

Got a pleasant reminder from Lou Flanders the other day; he is the unsung hero of the Class. Let's give him a hand, boys and girls, so he will have a good Christmas and have to spend less time signing the next class agent letters. And let's have some news; your secretary delights in writer's cramp. — R. M. KIMBALL, *Secretary*, Room 3-234, M.I.T., Cambridge 39, Mass.

'34

This summer I spent in Colombia, South America, looking after our family furniture factory. Life becomes complicated when one "commutes" such distances. It can be downright embarrassing when one relieves the manager and swaps houses. I had to explain to an astounded visitor that the manager's wife was living in my house in Connecticut and my wife was living in his house in Cali. But more problems than that arise. Mail goes to Colombia when I am here and vice versa. Thus I got notice today that I must write the class notes and mail them today! And not a single unsolicited letter is here to help fill these pages.

But here is news of Alfonso Garrido who is Cali's most prominent and successful architect. Since 1943, when his wonderful brother died, he has designed and constructed 345 buildings, many of them the most important in and around Cali. These include: the city railway station, the 2000-bed hospital, beautiful bank buildings, beer and tobacco factories, and schools. He has specialized in "everything"; so much so that today he spends a few days a week

working on his large agricultural and cattle estates. He would have come to our 25th reunion, but came down with typhoid as he was about to leave. One of his four children will be entering M.I.T. in 1961 to study chemical engineering. The other boy will go to an agricultural college, presumably so Alfonso can turn over the operation of his estates to him.

Robert Moody left the Ford Motor Company eight months ago, after making a valiant attempt to upset the American economy. You see, he was in charge of all imports of foreign made Ford cars and he virtually flooded the market with his 15 warehouses dotted around the country. Now he is gloating down in Florida, after successfully forcing the big three into the small car field. Supposedly he has his own car agency, but most likely he's leading a life of leisure and of a recluse, avoiding public notice until the storm caused by the small cars dies down. Rad Edmonds has had an important promotion from his former position in Olin Mathieson where he searched for new possibilities for old products and studied new products. Now he is co-ordinator of engineering and production, embracing all current and planned chemical production. Frank Feeley says Rad is superbly qualified for this new task. Frank is busy in Olin Mathieson in their manufacturing services division which they are now expanding. He is their expert on steam and power, of which the chemical industry uses no small quantity. His pleasure sailing from Larchmont was a bit fog-bound this summer, but not so his son, who seems to be a whiz at math and will go to M.I.T. via Princeton.

Rudy Churchill recently completed 25 years at W. T. Grant for which he was duly feted. That record cannot be broken by any classmate and it would be surprising if any of us knows a more capable merchandising expert. He is group merchandising manager for the variety and hard lines which make up one-third of the company's business. Rudy loves his work as it was his initial interest that made him seek it 25 years ago. His three sons are 21, 16, and 9, strategically spaced for amortization of educational expenses. The eldest soon will be graduating from Amherst, but the second might go to M.I.T. Rudy has consented to be our class agent for the Alumni Fund, and he is hoping that our good 48 percent participation will be raised through our co-operation to a magic 50 percent or better. It becomes easier for the Class as we get older and I'm sure all of us will want to help him lead us to that goal. Apart from being class agent, Rudy wants us to drop in on him at his centrally located office. He enjoyed a recent visit from Wally Wise who is pushing sales of Sargent's ingenious tool from his office in New Haven. Rudy also saw Dr. John Burwell, who is director of research for American-Standard. (Do you have any heating or plumbing problems at home?) Rudy talked with Neal Karr, who is vice-president in charge of special products at Singer Sewing Machine Company in New York. He also wants us to take our hats off to our entrepreneur Fred Vaughan, who has his own business in the competitive box industry, at Lindenhurst, L. I. His phone is TUrner 8-8120, but don't despair when you find it is always busy.

By the way, M.I.T. has quite a good name in Colombia. The M.I.T. Club of Colombia got 30 members from around the country, most of whom flew at least 300 miles to Cali, for their yearly meeting. Right then and there they started a scholarship fund to send a Colombian to M.I.T. There was an outsider, a Georgia Tech grad, at the meeting, who refused to contribute. So I hired him for our local factory and will make him contribute indirectly. The club will get contributions from the local industries, including ours. If you want to help M.I.T. get more money, send me some ideas of what products to make. Yes, this is an advertisement for my new research, development, and manufacturing company, Amring Company, at 11 Market Street, Stamford, Conn. A good portion of money made from new ideas will be sent to M.I.T. Drop any of us a line as to what your news is. All of us want to hear it. Best wishes for a Merry Christmas and a Happy New Year. — JAMES EDER, *Secretary*, 1 Lockwood Road, Riverside, Conn.; other *Secretaries*, HAROLD THAYER, 415 West Jackson Road, Webster Groves 19, Mo.; KING CROSBY, Longwood Road, Huntington 1, W. Va., MALCOLM STEVENS, Room 1-139, M.I.T., Cambridge, Mass.

'35

Missed the November issue. Sorry! The deadline had come and gone before I realized it. Here are some notes left over from last spring. Charles A. Piper was promoted to head the Bendix Computer Division's new applied mathematics section in Los Angeles. He had been assistant to the vice-president of engineering. B. B. Brownell, who is chief engineer of Electro-Motive Division of General Motors at La Grange, Ill., was a contributor to their *Engineering Journal* with an article entitled "A New Product Design: Evolution of a 6000-kw Generating Plant for Peak and Reserve Capacity." Wesley (Wes) H. Loomis, 3rd, President of General Telephone Directory Company, visited Honolulu this year. Wes and his wife, Polly, have a daughter Betsy 18, and two sons, Joe 16 and Fred 9. Paul Cohen, head of the engineering section of Underwater Armament Engineering Department of Surface Armament Division of Sperry Gyroscope, presented a paper entitled, "The Submarine Surveillance Problem," at the Fire Control Symposium at the Navy Submarine Base, New London, Conn., last May. The May 10 issue of the Boston Sunday *Globe* had a long and interesting article about the Jarrell-Ash Company of Newtonville, Mass. This company, headed by Richard Jarrell, who is president and chairman of the board, is the largest manufacturer of emission grating spectographs in the world.

The following classmates attended the Alumni banquet last June: Randolph Antonsen, Chester and Mrs. Bond, Beverly and Mrs. Dudley, Edward Edgar, Thomas and Mrs. Graham, Peter Grant, Oliver and Mrs. Hoag, Allan and Mrs. Mowatt, Bernard Nelson, John and Mrs. Quinn, Richard and Mrs. Rice and Cason Rucker. I was unable to attend the banquet but met them all at the inauguration and at lunch. All are enthusiastically looking forward to our 25th reunion next year. Your reunion committee is working hard and if you read the class agent Hank King's letter in October, you will know that the fund raising is doing well but not as well as could be if we had greater participation. If you have not given — give; if you have given — give more; also get after your classmates to give. Let's make a real good showing!

When the Suffolk Downs race track opened September 19 for night harness racing it was due in part to the work of Arthur S. Hamilton, Jr., who designed the lighting. The 'tunnel of light' makes this track the best illuminated racing surface in the country. — FRANCIS W. MULDOWNEY, JR., *Secretary*, 1109 Boylston Street, Chestnut Hill 67, Mass.

'36

We did not make the November issue but hope to do better in the coming months. We look forward to the very pleasant duty of co-ordinating and in some cases creating, news each month for you guys and gals.

Classmates are still pretty much on the move. John Chapper is now at 44 Linden Street, Swampscott, Mass. Carlyle Jacob has moved to 120 Babcock Street, Brookline 46, Mass. Jim Souder can be contacted at 202 Millwood Road, Chappaqua, N. Y. Luis Emilio's new address is Route 1, Box 619, Escondido, Calif. E. W. Matthews is now with Hayes Aircraft Company, Municipal Airport, Birmingham, Ala. Walter Mathesuis has moved to RD 1, Beaver, Pa. Arnold Clarke can be located at Apartment 3-12, 600 Bedford Road, Pleasantville, N.Y. Frank Phillips is at Featherbed Lane, New Vernon, N.J. Captain Hugh Knerr is with the Office of Naval Research, 346 Broadway, New York 13, N.Y. Phil Vincent can be contacted at River Road 2, New Hope, Pa. Webster Francis' new address is 6 Greenridge Road, Rochester, N.Y. John Bete is now at PO Box 311, Greenfield, Mass.

Our Class was represented at the Alumni banquet by: Ed Dashefsky, Vince Estabrook, Bill Garth, Alice (Hunter) Kimball, Leo Kramer, Hal Miller, Elliott Robinson and Dorian Shainin.

Former Burlington, Vt., Mayor Doug Cairns discussed "The Right to Work," in an address before the Burlington Lions Club. Earlier Doug had helped form a Vermont committee to back the right-to-work law in the legislature. Doug, now a member of the board of aldermen, heads an oil company in Burlington. Harold Smyth has written a technical paper which appeared in the June issue of the American Ceramic Society *Journal*. The paper was entitled "Elastic Properties of Glasses" and was the result of research conducted at Rutgers. He is a research professor at the School of Ceramics.

Bernard Sturgis, Director of the Du Pont Company's Petroleum Laboratory, has been named Secretary of the Division of Petroleum Chemistry, American Chemical Society. He joined Du Pont in 1936 as a research chemist in the rubber chemicals field and 10 years later became head of

the petroleum chemicals division of the company's Jackson Laboratory, where he directed research on tetraethyl lead and petroleum additives.

Bernard was assigned to the company's Petroleum Laboratory in 1951 and was named director in February, 1956. More than a score of patents have been granted in his name, and in 1954 he received the Society of Automotive Engineers' Horning Memorial Award for the outstanding technical paper on engines and fuels presented that year. He is an active member of the Society of Automotive Engineers, American Association for the Advancement of Science, the American Petroleum Institute, the National Advisory Committee for Aeronautics, the Combustion Institute, and the Co-ordinating Research Council, and is a national councilor and chairman of the Council Standing Committee on local Sectional Activities of the American Chemical Society.

A few more changes of address: Bill Smith is now at 376 Main Street, West Medway, Mass. Al Klemka's new address is 29 Manor Drive, Hudson, Ohio. Alden Anderson has moved to 25 Bubier Road, Marblehead, Mass. Jack Myers is presently working at the Lockheed Missiles and Space Division in Sunnyvale, Calif., as a flight test analysis engineer.—JIM LEARY, *Secretary,* One Putnam Park, Greenwich, Conn.

'37

Leo Moore is at the Institute. He and his wife, Christine, have five children and live at 80 Cushing Avenue, Belmont, Mass. Michael Zinchuk lives at 76 Gateway Drive, Springfield, Mass., with his wife, Ann. Don Duncan is an associate professor of physics at the Pratt Institute, School of Engineering, Brooklyn, N.Y. He and his family spent the summer of 1955 in Scotland and their other summers at Ocean Grove, N.Y. The Duncans and their two children live at 179 Steuben Street, Brooklyn, N.Y. Nick Nickerson left DeBello and Richardson, Inc., on March 1, 1958, and now is working for Arthur D. Little as senior staff associate in the research and development division as of November 1, 1958. Donald Kerr is an associate professor of physics at Johns Hopkins University. He is married and he and Barbara have two children. Martin Kuban assumed duties of chief engineer and plant superintendent of Velvac, Inc., Milwaukee, in 1958. He is the owner of the Choralyre Company, Milwaukee, makers of choral folios. The Kubans, Martin and Lorrayne, announce the arrival of a third child on October 24, 1958, a daughter, Rhonda. Ray Dreselly is the chemical products coordinator manager of the manufacturing office of the Humble Oil and Refining Company, Houston, Texas. He and Nell live at 2309 Missouri Street, Baytown, Texas. Vic Kron is a doctor and is the plant medical director, Campbell Soup Company, Chicago, Ill. The Krons, Vic, Honor, and three children, live at 1514 Scotdale Road, LaGrange Park, Ill.

Bill Bakarian, with his wife Helen, and their two children, live at 185 Whistler Road, Munsey Park, Manhassett, Long Island, N.Y. Quentin Berg with his wife Kari and their six children, live at 1550 Brandt Avenue, New Cumberland, Pa. Harry Kohl is the material director of the Lockheed Missile and Space Division. The Kohls, Harry and Edna, with their two children, live at 455 Golden Oak Drive, Portola Valley, Calif. Archie Ahmadjian, with his wife Louise and their two children, is now living at 170 Prospect Street, Ramsey, N. J. Frank Lewis is with the General Radio Company, which has recently moved from Cambridge to West Concord, Mass. He is in the engineering department and works at producing low-noise frequency multiplier chains for microwave measurements. Frank and his wife Beatrice, with their four children, live at 15 Woodland Road, Lexington, Mass.

The list of those planning to attend our 25th reunion is ever growing and includes the following additions: Leo Moore, Nick Nickerson, Martin Kuban, Ray Dreselly, Vic Kron, Bill Bakarian, Quentin Berg, Harry Kohl, Archie Ahmadjian, and Frank Lewis. Just heard from Windy Johns recently. As chairman of our 25th reunion, he urges all of us to answer the postcards and signify our intentions.— ROBERT H. THORSEN, *Secretary,* 506 Riverside Avenue, Medford, Mass.; CURTIS POWELL, *Assistant Secretary,* Room 5-323, M.I.T., Cambridge, Mass.; JEROME SALNY, *Assistant Secretary,* Egbert Hill, Morristown, N.J.

'38

In planning these notes, I continue to be amazed at how quickly clippings get to be several months old. A while back a paper by Yale Brozen was published on the editorial page of the *Wall Street Journal.* On checking back I find it was March 30 and I regret not mentioning the article sooner. The topic of his paper concerns the real roots of inflation and to me it makes a great deal of sense. Some recent advertising by Motorola, Inc., has included a photo of Dan Noble. The publicity discusses the activities of three of the company's divisions which are responsible to Dr. Noble, who is executive vice-president.

A news item reports that Clark Robinson has returned from a trip to Russia where he attended the International Conference on High Energy Physics. Clark, accompanied by his wife Rachel, spent 16 days in Russia. The Robinsons also spent four weeks traveling in western Europe. Another member of the Class has been in Europe recently. Bert Grosselfinger writes from Finland that he has been there to start operations in a chlorine plant. He suspects that it has the distinction of being the world's most northerly plant of its kind.

I have had a call from Donald MacDonald. Donald, who as many of you know is in the State Department, was making a tour of New England on personnel matters. He is currently stationed in Washington, D.C. Finally, a mid-August clipping indicates that Aram Kerkian has announced his candidacy for mayor of Newburyport, Mass. Aram and his brother Roy are owners of a building contracting firm in Newburyport. — DAVID E. ACKER, *Secretary,* Arthur D. Little, Inc., 35 Acorn Park, Cambridge 40, Mass.

'39

From the Haverhill, Mass., *Gazette* of August 13 came the sad news that Gordon Wirth Andrew and his wife Elaine lost their lives in a tragic accident in Xenia, Ohio, while returning home from a vacation. A hot-tar truck smashed into their car and the couple was fatally covered with hot tar. Their two children, David, 11, and Cindy, 6, were sitting in the rear of the car, and escaped serious injury. Gordon was born in West Boxford, Mass., in 1917, and graduated from the former Johnson High School in North Andover before entering M.I.T. He studied electrical engineering, graduating with a bachelor of science degree in June, 1939. At the time of his death, Gordon was an electrical engineer at Wright Air Force Base in Dayton, Ohio.

Pleasanter news by far for another '39er came from the August 6 issue of the Milton, Mass., *Record.* Colonel John A. Dodge, XVI, rated a nice three-column write-up and photo on his work in the Air Force. Since September, 1955, John has headed the re-entry vehicle development program for the Ballistic Missile Division. After enumerating John's accomplishments in this famous program, the *Record* article listed some of his earlier military achievements, including awards of the Bronze Star, the Army-Air Force Medal, the Medal of the Air Force, and the Cloud and Banner Medal by the Chinese Nationalist government. No less an admirable feat, it seems, was John's ability and determination to earn a master's degree in aeronautical engineering in 1947 from the California Institute of Technology. How about that, classmates, to go back after nearly 10 years for additional schooling? John's got what it takes; it is certainly no wonder he made such an outstanding contribution to the ICBM program!

On another plane of activity, several '39ers held an informal reunion as part of the third Alumni Officers' Conference held in Cambridge September 11 and 12. Present for one or both of the two-day sessions were: Ernest Kaswell, Manning Morrill, Ernest Ohsol, Albert Rugo, Seymour Sheinkopf, Oswald Stewart, Aaron White, and William Wingard. Among other items on the excellent agenda was a work session where we all pitched in to help sign the first class agents' letter of the season. As each of us signed our names to various letters to friends (and to classmates and graduate affiliates whom we didn't happen to remember, but who nevertheless are loyal friends), we earnestly hoped that you would respond to the Alumni Fund appeal in proportion to those of us who gave up one day away from work and our families to help along the cause of M.I.T. Commercial plug? Obviously! So, if you haven't yet responded to our October letter, or the one following, do it now.

And here's another appeal: with the change in secretaries from Hal Sykota and George Beesley, let's repeat their frequent plea for news of yourself or of other '39ers. — OSWALD STEWART, *Assistant Secretary,* 31 Birch Road, Darien, Conn.

'40

Stanley Stookey delivered a paper before the glass division of the American Ceramic Society on "Radiation Induced Nucleation" at the meeting at Galen Hall near Wernersville, Pa., in September.

Don't forget the reunion at Snow Inn this June, and don't forget to drop Al a line if you want to see this column expanded. — ALVIN GUTTAG, *Secretary*, Cushman, Darby and Cushman, American Security Building, Washington 5, D.C.; SAMUEL A. GOLDBLITH, *Assistant Secretary*, Department of Food Technology, M.I.T., Cambridge, Mass.; MARSHALL D. MCCUEN, *Assistant Secretary*, 4414 Broadway, Indianapolis 5, Ind.

'41

John Bone, formerly of the central technical department of Bethlehem's shipyard in Quincy, Mass., is now assistant port engineer for American Export Lines in New York, and has recently been studying nuclear power engineering. Kenneth McKay has been named vice-president in charge of systems engineering at the Bell Laboratories. With the firm since 1946, he was director of development of components and solid-state devices prior to his latest appointment.

Arthur D. Little, Inc., has announced the development of an eight-ounce cooling device which can chill infrared detection equipment to minus 350 degrees F. The cooler is a result of a two-year research project into extreme low temperature equipment conducted by Howard McMahon. Cooling infrared detectors to extremely low temperatures increases their sensitivity and makes them responsive to a wider range of wave lengths, thereby permitting detection of smaller temperature differences between the target and its surroundings.

From the Phi Gamma Delta publication, *Iota Muse*, we cribbed the following note from Jim Thornton: "Last fall we spent an enjoyable weekend at Howie Morrison's New Hampshire farm. Present were Howie, Ray Berry, John Sexton, Johan Andersen, and Bill Hooper, plus wives. There was poker, martinis, fishing, wonderful fall weather, and color movies of Howie trying to get a hula hoop into orbit. Ratio of waist to hoop diameter too large." We also learned from the same source that Johan Andersen, a director of Malcolm Cotton Brown Corporation, delivered a humorous talk at the fraternity's annual pig dinner.

Dave Kenyon, a research engineer in the advanced systems development engineering department of Sperry's countermeasures division, has written a paper on "The Range Performance of Marine Radar." With Sperry since 1941, he has worked extensively in the radar field, and is now concerned with the development of new components and techniques in the countermeasures field. Dave McNally, Vice-president of Kleinschmidt Laboratories, Inc., has been elected to the board of directors of the Chicago chapter, Armed Forces Communications and Electronics Association, for the coming year.

Frank Kolk, director of equipment research of American Airlines, spoke before the National Aeronautic meeting of the Society of Automotive Engineers in Los Angeles. Summarizing American's experience since last January with jets and turboprops, Frank said there was an urgent need to revise landing space requirements for jet airliners, although he felt that the ultimate goal should be improvements in the planes to shorten their runway requirements. Ray O'Connell, sales manager for Torrington Bearings, has an intensive program going in his company to train salesmen; they get two years of specialized engineering training before going into the field, enabling them not only to sell, but also to provide consulting service before and after the sale.

Aiding in the successful 1959 Alumni Fund drive were the following regional chairmen: Norton Polivnick, Denver; Bill Cadogan, Westport, Conn.; Harold Radcliffe, St. Petersburg, Fla.; Joe Meyers, Hinsdale, Ill.; Bill Butt, Dayton, Ohio; Hank Avery, Mount Lebanon, Pa.; and Bob Blake, Falls Church, Va. Our thanks to all who contributed their time and their talents to making the drive a success.

Are you still young in spirit? We hope so, but the years are passing apace: if you don't believe it, we announce the formation of the 20th reunion committee, headed by Johan Andersen and John Sexton. They have selected as the site the Bald Peak Colony Club, in Melvin Village, N.H., on the shore of beautiful Lake Winnipesaukee. More details on the great event as they are available — plan now to be there! Other members of the committee are Dave Howard, Walt Kreske, John Macleod, Mitch Marcus, Ed Marden, Howie Morrison, Harvey Pofcher, Charlie Sauer, and Reid Weedon.

A very Merry Christmas and a happy and prosperous New Year to all from — IVOR W. COLLINS, *Secretary*, 9 Sunnyside Drive, Dalton, Mass.; and HENRY AVERY, *Assistant Secretary*, Pittsburgh Coke and Chemical Company, Grant Building, Pittsburgh 19, Pa.

'42

Curtis D. Buford is very much in the news these days. A feature story in the *New York Times* of Sunday, September 20, announced his election as Vice-president in charge of the operations and maintenance department of the Association of American Railroads. It is the largest single department in the Association and deals with such activities as communications, safety, prevention of freight loss and damage, signals, engineering, and car distribution. The article goes on to say:

"The post calls for force of character and diplomatic ability of a high order. Mr. Buford and his staff 'inform and recommend' according to the A.A.R.'s handbook on its functions. Since all of the railroads of the country are locked into what is really a single system by interchange of equipment, data and recommendations mean little unless they are universally heeded. Since the A.A.R. can't say 'or else' to its members, this universal acceptance is a task of persuasion.

"Talent for persuading people who have to be persuaded, say the members of his staff when he was with the New York Central Railroad, is combined in Mr. Buford with a natural bent for organizing the people he has the power to organize. He himself works 6 and 7 days a week and 10 or 11 hours a day and sees no reason why everyone else shouldn't be willing to do the same. Not to tell tales out of school, but the word in Central circles is that a lot of 40-hour-week-minded staff members in Cleveland staged a celebration when Mr. Buford took his concept of a work week down to Washington. There is nothing curt or brisk about Mr. Buford, despite his reputation as a hard driver. Gentle and even-tempered, he is very cordial to everyone he meets and goes out of his way to explain what he is trying to do.

"As a relatively young man in an industry where seniority is highly regarded, Mr. Buford will have need for all the diplomacy he can muster in his new position. Anyone who has been an executive with the Central for the last 10 years or so — Mr. Buford joined the system immediately following World War II — has had full opportunity to develop resources of tact and adaptability during two changes in top management. Mr. Buford is an old hand at making himself at home in new places. He was born in Sioux City, Iowa. When he was only an infant his family moved first to Terre Haute, Ind., then to Chicago and finally to Seattle where he finished both grade school and high school. He spent his freshman year in college at the University of Washington." Curt joined us at Tech the following year and received his degree in Civil Engineering. He is married to the former Barbara Anderson. They have a family of five — three girls and two boys ranging in age from 10½ down to 1 year. Best wishes to you, Curt, from all of us in '42 for continued great success in your work.

Our Class was very well represented in the regional solicitation of the Alumni Fund last year by 15 men. Ray Wyland achieved 94 percent participation among the 65 Alumni in Foothills, Calif. Gene Brady reached 73 percent among the 75 in Norwood, Mass. Bill Tallman hit 67 percent in Manchester, N.H., and Jim Stern got 60 percent in New Rochelle, N.Y. The others in order of states were: Connecticut — Jack Madwed and Rex Beisel; Illinois — John Uhlemann and Pete Sloss; Maryland — Bill Devine; Massachusetts — Pete Volanakis; New York — Dave Nichinson, Harvey Kram and Ralph Mork; Texas — Jon Noyes; and Virginia — Jack Flipse. Thanks in large measure to their efforts, and to the work of the special gifts committeemen under Carl McGinnis' leadership, last year's fund reached a new high of $575,499 for all classes. The Institute also thanks each of you who reads these notes for your personal part in contributing to this fund.

Wedding bells rang very recently for Norman L. Davis of Falmouth, Mass. His bride is the former Martha Bangs of West Hartford, Conn. The happy couple are

settled on Cape Cod where he is in real estate. William N. Richardson was recently promoted to Major and is stationed at Fort Eustis, Va. The longest distance move since last we tabulated is that of John H. Thacher, Jr., from London, England, to San Francisco. Transcontinental moves were made by Reginald B. Cocroft, Jr., to Atherton, Calif., from Virginia; by Mihai P. Pancu to Talmadge, Calif., from Buffalo; by Captain Bernard A. Smith to Arlington, Va., from California; and by Richard C. Wynne to Rancho Santa Fe, Calif., from Burlington, N.J. Other changes of address are by David Christison to Barrington, R.I.; Leon M. Flanders to Norwalk, Conn.; William H. Haggard, II, to Tallahassee, Fla.; Commander Donald H. Kern to Saunderstown, R.I.; and Lieutenant Colonel Harlan K. Saylor to Washington, D.C.

Shortly after you read these notes Christmas will have arrived. A very merry one and a Happy New Year to all from — BOB KEATING, J. J. QUINN, ED EDMUNDS and LOU ROSENBLUM, *Tech/ops,* Burlington, Mass.

2-'44

I feel quite fortunate as secretary this month, as there is still a good deal of material to report on the 15th reunion, including the report on the questionnaire promised last month.

Since the reunion was held on the Cape, water activities were the order of the day. Saturday the dinghie sailors included El and Helen Ayers, Glenna and Herb Knape, Marilyn and Walter Gray. There were no reports of swamped dinghies, so the fellows must have retained their earlier talents. Dick Maconi brought his power boat and along with Bill Ritterhoff ran a water ski school. Cleo Ritterhoff was seen setting up to collect admission to the school. Bill Rodemann who is in business for himself in Cleveland, having established Swiftwater Industries, brought a plastic boat along to the reunion. Bill, Bob Fisher, and Pete Quattrochi were in quite a discussion as to the maximum horsepower motor that Bill's boat could take. This went on while all of us were enjoying the clam bake that was put on Sunday by the Chatham Bars Inn.

Among men who have cast out for themselves, is Bob Peck, who is a distributor of Johns Manville Products in the New York City area. Also, Bob Fisher is in business for himself in the Philadelphia area having set up a firm doing specialty casting work, I believe both ferrous and non-ferrous.

The Chatham Bars golf course was checked out by the pros and duffers. My roving reporter carefully left out scores, but did advise that he saw Lew and Sophie McKee, Don and Ruth Phillips, Walter and Mary Masnik, John and Dorothy Gardner, Joe and Arline Henrich, Irwin Jennis, and Art and Doris Bryant.

During the speechmaking Saturday night, the Class of '16, which was having a reunion at the hotel also, gave a cheer for our Class from the back of the room. It was completely unexpected and much appreciated by the Class. This was occasion to recall old class rivalry of Field Day, and Clint Springer who was attending the reunion as an observer from Class of '45 ended up being dunked in the calm Cape waters offshore. He claimed later that the water was really quite warm.

Along with the ringleaders in the ceremonial dunking mentioned above, the cheering crowd included Austin and Betty Hunt, Tom and Ellen Bell, Bob and Priscilla Breck. R. J. and Shirley Horn, Ed and Carry Ahlberg, Harlow and Sue Farmer, Tom and Judy Dolan.

Now for the rundown on the questionnaires. There were 38 returns, with the following results. Those in attendance were married a minimum of one year, and a maximum of 16 years with the median running 10-15 years. The median number of children was 3 with a maximum of 7, with the youngest due in September, 1959, and the oldest being 11 years old. The occupations broke down as follows: administration—22, engineering—12, sales—8, teaching—2, attorney—1, research—2, contractor—1. In order to maintain anonymity we asked for salaries expected by the 20th reunion. The median salary was $20,000 and the maximum was $100,000. The same question for the 25th reunion gave the same median, with the maximum raised to $150,000. There are 37 houseowners, 21 with two cars, 4 outboard owners, 6 sailboat owners, 2 canoe owners, and one fellow advised he owned a plastic boat model. There were no airplane owners, and no horse owners. There were 7 summer home owners, 1 cottage owner, and 1 farm owner. Thirty-seven classmates were happy with their chosen careers, and one said he would have selected another. Twenty-five would send their sons to M.I.T., 8 said they would not, and several said they had no sons, just daughters. Of those who would send their sons to M.I.T., 15 said they felt they could afford it, and 10 said they could not. And as a guide to the planners of the 20th reunion, 35 men said that they would plan to attend, with 3 saying that they would not.

That winds up the notes on the reunion. Next month I shall try to catch up with the mail that has come in this summer. Drop me a Christmas card at the address below, and give me some information on your activities or those of other men in the Class. — PAUL M. HEILMAN, *Assistant Secretary,* 66 Central Street, Wellesley, Mass.

'45

Although I have no definite word at the moment as to how the 15th reunion plans are progressing, I can assure you that your reunion committee members are planning to make the occasion a memorable one. Might I suggest you reserve your sitter — baby or otherwise — now, for June 10-12 is only six months away. The Snow Inn management has promised both good weather and good times. Our first reunion mailing should be in your hands soon.

Nick Mumford, in his mid-July letter, indicated that both he and Rosemary as well as Jake and Kate Freiberger would be at Harwichport next June. Since George Upton works at Chance Vought with Nick, I trust Nick can talk George into coming out, too. As Nick has three weeks' vacation next year, the Mumford's plan is to park the four kids with Nick's mother in Ashville, N.C., and then drive on for 10 days or so in New England. Why don't you, too, plan to make a real vacation out of your 15th reunion. Nick reports that Jake Freiberger is doing fine in the laundry business with branches of his Holiday Laundry all over Dallas. Recently Chance Vought was reorganized into five divisions and Nick and George Upton were promoted to parallel jobs as assistant chiefs of aero sciences for propulsion and aerodynamics, respectively. I hope that Nick and Rosemary were able to go to Nicaragua this past fall as Episcopalian diocese representatives. The purpose of the trip would have been to visit various missions in the country and report status as well as give helpful suggestions.

Congratulations to Max and Trudy Ruehrmund on the birth of Max, 3rd, August 22; also congratulations to Max on the fine job he did as class special gifts chairman for the 1959 Alumni Fund. I know Max and his able committee will do an even better job in 1960. While on the subject of the Fund, Bill McKay deserves all sorts of commendations for his work as class agent. 1945 participation went from 161 or 34 percent in 1958, to 194 or 42 percent in 1959 with, believe it or not, some 30 1958 contributions not appearing on the 1959 rolls. Our total contribution increased by about $3,800, making a total of $21,582; a sizable increase. This year Dave Flood will be assisting Bill with class agent activities as Bill devotes additional energies towards making our Alumni Fund giving an annual occasion rather than occasional event! We know that you all will continue to support the Institute.

Jerry and Lib Patterson's September pilgrimage to New York was a most sober affair as far as Fran and I were concerned. More than likely, it was because we met for lunch only; on the other hand, I suppose the girls lent a certain amount of dignity to the affair. Jerry is vice-president of the New York Association of Steel Fabricators and his New York trip coincided with their annual meeting. Lib and Pat took in several shows and I suspect Lib did her share of shopping! Jerry is most active in community affairs with, as he terms it, an occasional evening at home.

As many of you know, I endeavor to piece together a story from changes of address reported by the Institute. Hal Thorkilsen has moved to Lakewood, Colo., and for the life of me I cannot tell whether he is still with Colgate-Palmolive. Ed Lerner has left Brooklyn for a professorship in physics at the University of South Carolina in Columbia. Ray Elmendorf is back with Esso in New Jersey after several months in Koln-Klettenberg, Germany. After five years in Manchester, Conn., Matthew "Red" Harrington of Shell Oil is now in Barrington, R.I., my old stamping grounds; while George "Dapper" Landon has transferred to Mt. Vernon, Ohio, after nine years in Wilmington. I talked with Prexy Dave Trageser last week and he reports that Tom Hewson has been transferred to the St.

Regis Paper's New York office as manager of technical planning. Bob Fraser was recently elected president of the Amesbury, Mass., Rotary Club.

I have just received my fall letter or report from Ed Stoltz of Johns-Manville in Pittsburgh. Ed reported on his work as a regional chairman of the Alumni Fund and as many of you know there are a few problems to go along with the fun! One of Ed's vice-chairmen was Great Neck's own Peter V. P. Schwab — also of various other fames! Ed assures me that he can produce 100 percent Pittsburgh attendance at the reunion as follows: Al Oxenham of Pittsburgh Coke and Chemical; Tom Stephenson, Alcoa; Julian "Jumper" Gammon, Blau Knox; Pete Schwab, National Research; Bill Humphreys and Andy Marocchi, Westinghouse. Wives are included but 16-odd children will remain at home. Ed indicated that he had almost been transferred to New York this past spring, but I would judge he was happy to remain in the Pittsburgh area. Pittsburgh must possess one of the most active M.I.T. clubs, for Ed reports that the club meets every fourth Monday at the University Club.

In behalf of your fellow classmates and their families may we wish you and your family a Happy Holiday as well as a Happy Reunion Year! — C. H. SPRINGER, *Secretary*, 420 Lexington Avenue, New York 17, N.Y.

'46

The third Alumni Officers' Conference was held at M.I.T. on September 11 and 12 and was well attended but not by '46. Of six who were listed as expecting to attend only Ned Tebbetts, our class treasurer and advance gifts chairman, and yours truly attended. Those who didn't make it missed a pleasant and informative weekend. These conferences are held every other year and those attending enjoy meals at Walker and the Graduate House (it doesn't look much like a Navy barrack any more), reception and cocktails at the President's house, and lodging in Baker House, the new Senior dormitory, all as guests of the Institute. Among the interesting speakers were Dr. Julius Stratton, President of M.I.T., Dean B. Alden Thresher, Director of Admissions, Samuel A. Goldblith, Professor of Food Technology speaking on applications of electronics to food, and Charles L. Miller, Associate Professor of Surveying speaking on surveying with the speed of light. One of the subjects of the conference was the Alumni Fund, and the Fund's annual report was given.

We reported in these notes in years past that 1946 was not holding its own too well in Alumni giving, and I am sorry to report that the latest Fund report shows very little improvement. Our Class has the lowest percentage of class contributing of all the classes except the graduate classes of 1953, 1954, 1955, and 1956, and the undergraduate classes of 1956, 1957, and 1958. Our average contribution is the lowest of all classes up through 1949. Statistics are cold, impersonal things but these statistics seem to indicate a cold impersonal feeling among many of our classmates. The Alumni Fund serves some very personal functions. Each year 12 exceptional but financially needy Freshmen receive Alumni Fund scholarships to help them through the four years at M.I.T. Substantial financial assistance was provided for the building of Baker House and the Hayden Memorial Library. This year the Fund has appropriated $150,000 for the start of construction of dining facilities in Burton House. These and many other projects are the purposes of the Fund. If you have not answered Howard Perlmutter's letter yet, please do so now. If you have mislaid the letter don't stand on formalities. Just send your check, made out to the M.I.T. Alumni Fund, M.I.T., Cambridge 39, Mass., and include a note giving your name and address and your class. Let's see if we can't raise both our percentage of contributors and our average gift amount of $13.80.

An article in the St. Petersburg *Times* tells us of Don Burke's new home at 1818 Caesar Way South, St. Petersburg, Fla. The article is too long to quote in full, but the description of the house makes interesting reading. The house has four bedrooms, three baths, a patio with toys for the children including a miniature roller-coaster, inter-com system, central air-conditioning and heating, and so forth. Don is director of technical sales and engineering for Protective Coatings, Inc., of Tampa.

Antonio C. M. Nunes has been married 13 years and has 8 children, par for the course in any league. He lives at Rua Paulo Cezar de Andrade, No. 106, Apt. 604, Rio de Janeiro, Brazil. He has been with Societe Anonyme du Gaz de Rio de Janeiro, manufacturers and distributors of gas to that city, for six years and was recently promoted to associate general manager.

A few weeks ago, while he was in Boston on business, John Gunnarson dropped around to my office and we had a short visit. John is manager of one of the divisions of the MB Electronics Division of Textron. He is continually amazed but very happy to learn of the vast number of vibrational shakers used throughout the country (we have two of his shakers in our own plant).

That's about all the news I have for this month. Don't forget to send your check to the Alumni Fund, and while you have pen in hand why not send me a note. A postcard will do, to — JOHN A. MAYNARD, *Secretary*, 15 Cabot Street, Winchester, Mass.

'47

Now that the leaves are all off the trees in areas other than Southern California, and most of you are looking out the window at the first snowfall of the season, your correspondent will endeavor to fill you in on happenings concerning our Class since his last missive. In the warm and humid days of early September, I was fortunate in being able to attend the third Alumni Officers' Conference at the Institute. Under other circumstances, this trip would not have been made, but we were exhibiting at the Graphic Arts Exposition in New York during the same week, and the opportunity was taken. There were meetings all day Friday, and a half day Saturday. The various seminars and lectures were designed specifically to enable your elected representatives to do a better job for you, and in the case of the educational counselors, a better job for the Institute. Meals and lodging were on the Institute. We were housed in Baker House and meals were served at the Graduate House and Walker, the Friday evening meal at Walker being buffet style.

When you, my friends, look back to the days when eating at the Institute meant three meals a day at Walker, you would find it hard to believe the apparent improvement in both the preparation and serving of that evening meal. The buffet consisted of a complete range of meats and fish, all the way from standing beef ribs, sliced to your order, to cold boiled lobster; dessert was strawberry shortcake. I don't want you to think that this is the regular daily menu at Walker, but the mere fact that those people can put together a feast like that is a small example of the strides that M.I.T. has made in recent years. Saturday morning we attended a lecture on several new projects at the Institute, and on some new developments in the field of surveying. In the food field, we were shown a machine which simulates chewing, complete with a set of false teeth, in order to graphically determine the constituencies of foodstuffs. All in all, the conference was more than worthwhile.

In addition to the pleasures of an old grad's return for a few hours, Ed Kane and Jim Phillips were also present at the activities. Ed and I spent considerable time together, and some of you may have seen his signature on the class agent's letter, which we both helped sign, along with Jim Phillips. Ed is still with the Cuno Company in a sales managership, and is currently president of the M.I.T. Club of Hartford, Conn. Jim's affiliation with Vance, Sanders and Company in Boston is one of long standing, though his primary interest is in mutual funds. Friday afternoon at the conference, I played hooky to observe the testing of an experimental wing section at the supersonic wind tunnel, through the courtesy of Leon Schindel '45. Unfortunately, something broke down in the compressor system of the tunnel, so the test was suspended before it hardly was under way. However, while watching the preparations, I had the opportunity to spend a few minutes with Frank Durgin, who asked me to extend his greetings to all the classmates. Other contemporaries of ours at the conference included Clint Springer and Bill McKay of the Class of '45, John Reid, John Walsh, Frank Stern and Arnold Singer of '48. Both Johns are presently residing in New Jersey, the former working for the American Society of Mechanical Engineers, and the latter for Public Service Corporation of N.J. Frank just moved into the Boston area from San Francisco, and Arnold runs an industrial laundry in Dallas, Texas. Arnold tells me that he won't accept any overalls under size 44 (everything's big in Texas). I asked him how much engineering he's been using, and got the reply that he used the Steam Tables to determine his boiler temperature, so Course 10.28 wasn't a total loss.

Upon my return to Los Angeles, I had a letter from Dick O'Donnell, who advises

that his position with Ingersoll-Rand finds him located at 4218 90th Street, SE, Mercer Island, Wash. Therefore, any of you in the Seattle area, be certain to let him know you're there. Dick, his wife Gina, and his two children made the trip west, and are still undecided how well they like it in this part of the country, reserving a decision until they've had the opportunity to go through a winter in the Pacific Northwest.

Remember, the 1960 Alumni Fund is well under way; make it a happy Christmas for M.I.T. and give! P.S. from me, a most happy holiday season, and a prosperous New Year. — ARTHUR SCHWARTZ, *Secretary*, 8355 Blackburn Avenue, Los Angeles, Calif.

'48

A few members of the Class of '48 were fortunate to get together in Cambridge this past September to compare notes, swap stories, and enjoy visiting the Institute again. The scene was the third Alumni Officers' Conference, which attracted 12 members of our Class for a series of meetings related to the role of the Alumni as class and club officers, educational councilors, and Alumni Fund solicitors. Big Bob Bliss as well as yours truly represented the class officers. E. Neil Helmers, Roy Janson, John Littlefield, Adolf Monosson, and Arnold Singer attended as Alumni Fund solicitors. Present for the educational council were John Reid, Bob Stern, and John Walch and club officers John Kaymen and Ed Newdale as well.

Neil Helmers, with Du Pont down in Wilmington, Del., was particularly noted for leading the Newark, Delaware region of the Alumni Fund to becoming one of four regions in the U. S. to reach 100 percent response on contributions. Also we are fortunate in having Adolf Monosson, our expert in things financial, as chairman of the class special gifts committee. Talking with Bob Bliss at the meeting, I learned that Bob has shifted from his duties in long-range planning at United Shoe Machinery to assume the gratifying task of starting up a new business for them. As manager of United's new Powasert Department in Winham, Mass., Bob is striving to develop a market for automatic mailing equipment.

Mike Kami, formerly director of product planning at IBM, was recently appointed director for corporate long-range planning. Mike is forming a new group at IBM to develop and recommend long-range corporate objectives, evaluate division and staff plans from a corporate standpoint, and maintain corporate and divisional planning criteria. Note should also be made of two '48 men in the military. Captain Ployer P. Hill has been awarded the Air Force Guided Missile Badge recently. Pete is a project officer in the Guidance Division for the A.M.C. Ballistic Missiles Center at Englewood, Calif., and is living in Rolling Hills, near the Palos Verdes district of Los Angeles with his wife and five children. Dr. Wilbur of the Civil Engineering Department was met by Lieutenant Colonel Robert Burlin at Sondrestrom Air Force Base on the east coast of Greenland last summer. Bob took Dr. Wilbur, accompanied by Dean Brown, on a tour of the Greenland icecap by a ski-equipped plane. I note only two recent items related to technical accomplishments. Frank E. Guptill, a research engineer at Texaco's Montebello, Calif., Research Laboratory, has been awarded a patent covering an improvement in methods and equipment for grinding solid materials by fluid energy. Frank also has several other patents to his credit relating to the production of tonnage-hydrogen from natural gas, crude oil, and coal. R. E. Mould collaborated on two papers which were presented before a national meeting of the glass division of the American Ceramic Society recently. His collaboration consisted of parts I and II of "The Effect of Chemical Composition on the Strength and Static Fatigue of Soda-Lime Glass." The two parts are entitled "Experimental Methods and Results" and "Analysis of Data and Discussion." — RICHARD H. HARRIS, *Secretary*, 26 South Street, Grafton, Mass.; HARRY G. JONES, *Assistant Secretary*, 94 Oregon Avenue, Bronxville, N.Y.; HERBERT KINDLER, *Assistant Secretary*, 128 Elatan Drive, Pitsburgh 16, Pa.; ROBERT R. MOTT, *Assistant Secretary*, Box 113, Hebron, Maine.

'49

Marriages, four of them, head the list of current news items this month. S. Leslie Misroch was married in September to R. Barbara Graham in New York City. He is now with the law firm of Pennie, Edmonds, Morton, Barrows and Taylor. His LL.B was obtained at Fordham and he also holds a master's degree from Columbia. Minas Deranian and Norma Jean King of Newton Junction, N.H., were married August 15 in the M.I.T. Chapel. They plan to live in Malden, Mass. On the same day, Theodore R Madden and Sheila Murphy of Waban were married there. Ted is now assistant professor in the Department of Geophysics at M.I.T. The Maddens went to Europe on their wedding trip. Upon their return they will live in Concord. The marriage of John Lawrence Enos and Brigitte Monica Hanf on July 13 took place in Athens, Greece. Both the principals qualify as well-traveled: his schooling started at Harrow, England, while hers took place at such widely scattered locations as Warrendyte, Victoria, Australia, and the Rhode Island School of Design. Until recently, Mrs. Enos was designer in charge of children's books and medical textbooks at Little, Brown and Company, Boston. Dr. Enos has a Ph.D. from M.I.T. and is an assistant professor of Economics in the School of Industrial Management. They will live in Boston. Congratulations all!

Two items from the military concern West Point and Annapolis graduates who received M.S. degrees in 1949. Major Carroll E. Adams, Jr., of the Army's corps of engineers, has been assigned to duty at Cape Dyer, Baffin Island, in the Canadian Arctic, where he will be in charge of constructing BMEWS communications facilities. In June, Major Adams graduated second in a class of 619 from the U.S. Army Command and General Staff College at Fort Leavenworth, Kansas. Also in June, Captain Edward A. Rodgers, USN, took command of the naval air development unit at the South Weymouth Naval Air Station. A final item from the Army reports that Captain Charles K. Nichols was commended for outstanding service as an instructor at the Ordnance School at Aberdeen Proving Ground, Md. Speaking of instructors, Richard L. Saville is now teaching chemistry at Staples High School in Westport, Conn., after four years at the Norwalk High School.

I am sorry to report that Vincent Raphael Murphy died on August 5. Pete Murphy was well loved and respected by his classmates at M.I.T. He was truly an outstanding member of our Class: President of Eta Kappa Nu; Chairman of the Interfraternity Council Investigating Committee; and President of his fraternity, Theta Chi. We are shocked and saddened by his death.

The 10th year reunion committee reports that its frantic last minute efforts to drink up the profits were unavailing. Stan Margolin's management of the gambling tables was so astute that net profits of $500 are to be transferred to the class treasury. We will start publishing the class statistics and other information garnered from the reunion questionnaires next month. In the meantime, the reunion committee has held a sneak preview of the movies, slides, and Polaroid pictures taken at the reunion. Since there is already enough money in the class treasury, they decided not to use the material for blackmail purposes. Instead, a series of private showings is being planned. The first of these will be held in the greater Boston area early in 1960. If you live elsewhere and would like a showing of this very funny film in your area, write to me expressing interest. The films can easily be made available.

Next month we will publish the rogues' (and molls') gallery of attendees at the reunion. Also, starting then and continuing throughout the year, we will give you the latest information on 134 classmates: those who returned their questionnaires. If you would like to join this select group, look through your action file for the questionnaire you received earlier this year, fill it out and send it in. Or make up your own if you prefer. If you think you have troubles, read here and see what happened to your classmates. — FRANK T. HULSWIT, *Secretary*, 14 Nadine Road, Saxonville, Mass.; STANLEY V. MARGOLIN, *Treasurer*, 215 Grove Street, Auburndale 66, Mass.

'50

As all you fiftyites start to read this column, reach out for the calendar, turn to the month of June and draw a large circle around the second weekend, June 10, 11, and 12. I have a date with each and every one of you to join together and celebrate our 10th reunion. Your reunion committee, co-chairmaned by Frank Parese and Charlie Levy, is hard at work here in Cambridge making arrangements for the festive occasion. The Curtis Hotel in Lenox, Mass., has been selected as the site for the reunion.

Anthony Lawrence Julius received his Ph.D. in geophysics and physics from St.

Louis University in June. From Washington University in St. Louis, Mo., Clarence Picard received his master's degree in business administration, and Louis Washauer received his master's in engineering administration. Fox Conner is the recipient of the 1959 Flight Test Engineering Fellowship, from the Institute of the Aeronautical Sciences. He spent five years with Republic Aviation Corporation and now is with Lockheed Aircraft Corporation. Among the participants at the Empire District meeting of the American Institute of Electrical Engineering held in Syracuse, N.Y., in April were: Joseph Dillard, Jr., of Westinghouse Electric Corporation, who gave a paper entitled "Lightning Protective Requirements of Generators Connected to the System Through Wave-Grounded-Delta Transformers," and Herbert Grossimon of Concord Controls, Inc., who gave a paper on "Tubes and Transistors in Machine Control."

Claude Tapley has been with the American Brass Company since graduation, the last seven years on the road as a sales representative. This past summer he was promoted and will now be working out of the Waterbury, Conn., office. The Tapleys now have two boys, ages eight and five. Bill Towles is now living near Orlando, Fla., having transferred with the Martin Company from Baltimore where he spent seven years. Lawson Harris has joined the staff of the General Electric Research Laboratory in Schenectady, where he will specialize in magnetohydrodynamics, and dynamics and control. James Geiser was promoted to assistant manager of research and development at the West Penn. Power Company. Jim joined West Penn. in 1950 and was assigned to the Springdale Power Station until 1953 when he was transferred to the Pittsburgh office. In 1954 and 1955 he spent 12 months, under company sponsorship, at the Oak Ridge School of Reactor Technology. Since graduation from the Reactor School, he has served as engineer on the staff of Vice-president—power, until his recent promotion. Jim, his wife Joanne, and son David are now living in their new home at Charter Oak, Greensburg, Pa.

Donald Young is a vice-president of Chemical Fund, Inc., an open-end investment trust with approximately $230 million invested in securities of companies operating in chemical and allied fields. After graduation, Don was an engineer for Owens-Illinois Glass Company until 1952 when he joined F. Eberstadt and Company, investment banking house, which provides management services for the fund. He has been engaged primarily in portfolio management activities since then. Al Petrofsky is still with Morrison-Knudsen, now working in their home office in Boise, Idaho. His specialty is tunnel estimates which entails a fair amount of traveling for site investigations and bid submissions. Recent bids included the Wachusetts-Marlborough tunnel in Massachusetts, subway tunnels in Toronto, Canada, diversion and power tunnels for Dez Dam in Iran, and a special cost study for the projected English Channel tunnel.

Richard W. Hamilton died on July 15, 1959, following a lengthy illness. He received his master's degree in Architecture with us in 1950 and was associate director of the Graduate School of Architecture at M.I.T. Surviving him are his wife, the former Patricia Campbell, and two small sons.

Clinton Burdick is head of the Components Research Department Aeronautical Equipment Division of Sperry Gyroscope Company. Kazuo Kiyonaga joined the staff of the Linde Tonawanda Laboratories, a division of Union Carbide Corporation, and is now a member of the development section of molecular sieve products. Prior to joining Linde, he was engaged in process design work for M. W. Kellogg Company, New York, and prior to this he worked as a chemist for the Waialua Agricultural Company, Hawaii. Maurice Kunstenaar reports that as of May 5, 1959, his family increased one fold by the addition of a second son, Claude. Jack and Liz Cord also had a one fold increase on August 7, 1959. Their second son, fourth child, Matthew, joins the household of Michael, Kathleen, and Nancy. Jack is working for Bell Aircraft in Buffalo on their vertical take-off project.

Last spring in his president's letter, Bob Mann sent out a request for class dues, his first request since graduation. I am pleased to report that 85 of our classmates responded to the call and swelled our treasury a bit. However, the call is still out and in this, a reunion year, our treasury can stand a lot of swelling. A check for three dollars, made out to Class of 1950, M.I.T., and mailed to me will be greatly appreciated. Let us double the 85 figure by the first of January, 1960.—JOHN T. WEAVER, *Secretary,* 24 Notre Dame Road, Bedford, Mass.

'53

Jots on class doings: Stan Silverman and Elizabeth Pierpont Hass of Rahway, N.J., were married late in June. Stan is working with the research laboratories division of Merck, Sharpe and Dohme, and his wife is an assistant buyer with Hahne and Company, Newark. She graduated from Cedar Crest College, and Stan completed his master's degree at Tech. A couple of weeks later, Arthur Piko and Jane Ann Rosenthal were married nearby in West Roxbury. Arthur did his undergraduate work at Worcester Polytechnic Institute and received a master's degree from M.I.T. His wife attended Columbia University and graduated from Wellesley College. Arthur is presently an assistant professor of electrical engineering at Tufts University.

Reuben Pomerantz, who is a major in the U. S. Army Quartermaster Corps, recently received the Army Commendation Ribbon with Metal Pendant. The award was given in recognition of meritorious performance of duties as deputy commander and technical director of the QM Radiation Planning Agency during the past two years. He presently is assigned to the staff of the commanding general, Headquarters QM Research and Engineering Command at Natick, Mass. Nelson Lees has been appointed assistant to the director of public relations at M.I.T. Since graduation, Nelson completed his M.A. at Columbia University, then spent two years as a commissioned officer in the Army (Army Security Agency). He was released from the Army in Japan, where he taught English and studied Japanese.

Two other classmates have recently entered the teaching ranks. Ali Argon, who has his doctorate and is now living in Belmont, Mass., received an appointment as assistant professor in the Department of Mechanical Engineering at M.I.T. Bill Phinney completed his doctoral studies at M.I.T. this past summer. He and his wife, Colleen, and two children have moved to Minneapolis where he is a professor at the University of Minnesota. I ran into John Jeris in the corridors of M.I.T. the other day. He has been married about a year now, and has returned to M.I.T. graduate school to work on his Ph.D. in Sanitary Engineering (he completed his M.S. a couple of years ago at Tech). Prior to returning to Cambridge, John and Helen were living in Cazenovia, N.Y., where he was working for Stearns and Wheler, Consulting Engineers. Roland Johnson is still a co-pilot for Eastern Airlines. He and Eleanor are living in Andover, Mass., and have a one-year-old son. Since graduation, Antonio de Sousa Neves has completed his Ph.D. in Geophysics at M.I.T., gotten married, and started raising three boys. He and Joyce are abroad in Quelimane, Portuguese East Africa, where Antonio is director of geophysics and administration for Geotecnica, LDA, a job which requires some 2500 miles of traveling a month.

George Michel is production manager for Clearing Machine Corporation, division of U. S. Industries, in Hamilton, Ohio. As he puts it, he has been ". . . cultivating ulcers." Also, he and Pauline have two small children. Elmer and Beverly Selby, and a young daughter, are out in Elmira, N.Y., where Elmer works for Westinghouse Electric, Electronic Tube Division (apparently in materials and process engineering). Joe Cahn earns a living with Hughes Aircraft Company, Los Angeles, in electronic systems engineering. In the past five years, he also finished his M.S. at Tech. He and Audrey have two children, a girl and a boy. Pardon my boasting, but yours truly—M. Wohl—now is the proud father of a young son! Hope to have two more by our 10th reunion. Jirair Babikyan, still a bachelor, is in sunny California (Anaheim). He is project engineer in electromagnetic design, research and development, for Pacific Scientific Company. Fills in spare time with evening graduate courses at U.C.L.A. Jack Rempert, his wife, Shirley, and two kids (one of each), are also in California, at South Pasadena. He earns a living with the Los Angeles Department of Water and Power, doing water distribution system design and hopes to complete his M.S. in civil engineering at the University of Southern California in January, 1961. Jack concluded by saying: "After spending Christmas back in Chicago, the smog ain't half as bad as the snow." Carl and Joan Scheid are in Greendale, Wis., and are the proud parents of one-year-old twins (boy and girl). Carl works for General Electric Company, X-ray department, doing materials evaluation. John Horning is employed by Rocketdyne, a division of North American Aviation, Inc.; he is responsible for co-ordination between controls and systems. John and his wife, Fern, are living nearby in Northridge, Calif.

Robert Gellert is working on investments with United Continental Corporation in New York City; however, he, Rosa, and their year-old daughter are still out in Hartsdale. Bud Edelman offers some interesting words of wisdom: "If the transistor had been invented first, the tube would have replaced it." At any rate, he is eastern sales manager for Electro Instruments, Inc., Digital Data Systems Division; he and Norma have a three-year-old boy and are located in Sudbury, Mass. — *DO WRITE!* — MARTIN WOHL, *Secretary*, Room 1-131, M.I.T., Cambridge 39, Mass.

'55

As usual, summer was a time of many weddings. Ed Kiess was married to Ruth Stromberg of Oceanport, N.J., an alumna of Gettysburg College. Ruth is presently on the faculty of Middleton School while Ed is stationed at Fort Monmouth. Saul and Joan Blinder were married in their native Newark, N.J., in August, and are still in that area. Joan, the former Joan Lieberman, a graduate of Newark College of Rutgers University, is teaching in Newark, and Saul is a research engineer with Johnson and Johnson in New Brunswick. Ed Wiot has returned to his studies at Worcester Tech with his bride, the former Louise Whelchel of Virginia Beach, Va. Also back at the books is Mrs. Sheldon Busansky, who was before her recent marriage Phyllis Hendler of West Hartford, a graduate of Wheaton. Sheldon is now in the law department of Raytheon, having received his law degree from Harvard. Back at Tech, this time in the capacity of assistant professor in Mechanical Engineering, is Pierre Brosens. Gil and Barbara Davidson sailed in September for a year in France. Gil, who received his Ph.D. in August from M.I.T., is a Fulbright scholar and will devote the year to research in nuclear physics at L'Ecole Polytechnique in Paris. Some of you may remember Barbara as Barbara Berger of Brookline.

Another recent recipient of a degree is Gary Brooks, who was awarded a master's degree in chemical engineering in June by the University of Rochester. A wonderful letter from William H. Nichols, S. J., has brought us up to date on his activities since 1955. Bill stayed at Tech and received his Ph.D. in Physics in 1958. He has since devoted his time to theological studies, except for two summers of research in physics at Stanford, Case, and John Carroll University in Cleveland. A Jesuit since 1945, he is preparing for ordination to the priesthood on June 18, 1960, at Weston College, just outside Boston; and he has an unusual invitation for classmates — to show you what a Jesuit seminary looks like. He would also be pleased to have any interested Tech Alumni attend his first celebration of the Mass in Cleveland Heights, Ohio, next June and promises definite information about time and place later. Bill will be at Weston, except for summers, until June, 1961, after which he expects to be teaching physics at either John Carroll University or the University of Detroit.

John Erickson is now back at M.I.T. for a master's in Course XV. He recently completed a military tour as a fighter pilot, serving in Texas and Africa. Also out of the Air Force is Pierre Casimir-Lambert, who had about as good a military tour as one can imagine. Pierre was a contracting officer at the Air Research and Development Command's European Headquarters, in Brussels, and spent most of his time traveling in Europe to the different universities, discussing research programs. He is now at the Harvard Business School, and once again enjoying Cambridge existence.

Dick Schwind is back at Tech for his second year working for an Sc.D. in Mechanical Engineering. He had been with Thompson Products in Cleveland before returning to school. Rumor has it that Sandy Goldman is back from his Fulbright year at Delft, Holland, and is continuing on at Columbia in the electrical engineering department. Jim Ahlgren, looking very prosperous, was one of the representatives of Page Engineering Company at the Institute of Radio Engineers Professional Group on Communications Systems symposium at Utica, N.Y. He is in the research department, and has been doing considerable world traveling in connection with his work.

Dave Lipke and Dennis Shapiro attended the M.I.T. summer program on reliable long range communications, and Russ Meyerand led his group from United Aircraft up to Tech for the program in plasma physics. Russ says that housing was no problem since in-laws, Professor and Mrs. Guillemin, were packed off to the country for the three weeks, and he and Mary-Grace just took over the house in Wellesley Hills. John Seiler is now at the Boston University School of Political Science in the African program. He is also teaching science at the Buckingham School in Cambridge.

That covers it pretty much for now. Please drop us a line. This column has just about used up all the material gleaned over the summer, and we need future copy. Even though this is being written in October, and it sounds strange to our ears, we wish to all of you the best of season's greetings and lots of luck for 1960 — our reunion year. — MRS. J. H. VENARDE, *Secretary*, 107 Mullin Road, Wilmington 3, Del.; L. DENNIS SHAPIRO, *Assistant Secretary*, 15 Linnaean Street, Cambridge 38, Mass. ELiot 4-4901.

'56

On September 11 and 12, the Institute held its third Alumni Officers' Conference in Cambridge. A similar conference, for those too far from Boston to attend the regular meeting, was held in Chicago in early October. Although representation from the more recent classes was sparse, both yours truly (M.P.B.) and Walt Frey from our Class found it possible to attend. Perhaps the two most interesting events on the agenda were the dinner address of Dr. Stratton and a special panel discussion on the role of the Alumni. In addition, there were several special seminars, demonstrations of some of the recent developments at Tech, and ample opportunity to scout around the place and see what changes have been made.

However, it is the panel discussion on the role of the Alumni that I feel is particularly worth mentioning, for here some of the current ideas of the Alumni Association were aired. It is rewarding to note that some of the suggestions put forth coincide, at least in part, with the thinking of our own class officers. Gradually the Institute and the Alumni Association are coming to realize that the class is an extremely unwieldy unit to work with: the members of a given class are spread all over the world, connected by little more than the rather tenuous bond of being members of the class of something-or-other. The most successful Alumni ventures in recent years have been the regional M.I.T. clubs, and, in the area of Alumni fund raising, regional solicitation (which has produced a 40 percent increase in the number of responses).

This is not to say that the class as a unit is dead in any sense. It merely implies that considerable reorganization of the class Alumni organization may be advisable. We have already tried some reorganization of our class communications system. Basically, we envision the communications network of the Class as consisting of a relatively large number of assistant class secretaries, located in areas in which there is a high density of class members, directed by a class secretary whose task is to integrate reports from these assistants, in addition to serving as the link for the rather high proportion of class members who live in "isolated" areas. So far, this system has worked with admirable success in the two areas (Boston and Akron) in which it has been tried on a formal basis.

For purely selfish reasons, the Alumni Conference was also a welcome excuse to visit Tech and see a large number of old friends and acquaintances once again. In addition to those at the Alumni Conference, it seemed that an uncommonly large number of people had wandered into Boston for one reason or another at about that time. As I have already mentioned, Walt Frey was the one other member of our Class at the meeting: he is now working as an engineer for Pan American Airways in the New York area, and has also been active in regional solicitation for the Alumni Fund. Among those that I found wandering around the campus were Bob Kaiser, finishing a Ph.D. in Chemical Engineering, and Fred Culick, back from a Fulbright in Glasgow, and also working on his doctorate at Tech. In from the Chicago area were Dave Kleinman, now studying for a master's degree in statistics at the University of Chicago, and Dick Kinney, a process design engineer for Standard Oil of Indiana. Dick proudly informed me that the Kinneys are now three.

Getting away from this conference, marriage still seems to be a popular institution with the Class. In June, Harry Scherzer married Helen Cohen of Newton Center, Mass., and William Rice wed Sheila Brown of Belmont, Mass. Later, in August, Harold Galberg was married to Priscilla Ann Murray of Holbrook, Mass. Harold is currently employed as an engineer for Raytheon in Bedford, and is studying for a master's degree at Northeastern. Tom Cain, now an Air Force nuclear research officer assigned to Kirkland Air Force Base in New Mexico, married Patricia Smith of

Mason City, Iowa. Also in August, Harold Frumkin wed Jane Wasserman of New York City. Harold now holds a master's from Boston University, and plans to study for his doctorate in literature at Columbia after completion of military service. Jesse Rothstein, now a lawyer with the firm of Amster and Levy in New York, married Polly Wittenberg of Fairfield, Conn.

Morrin Hazel and wife, now living in Saugus, Mass., announced the birth of a baby girl, Leslie Sharon, on September 14. Going back in time a little, Frank Bader, who is married to the former Nancy Granirer of Cedarhurst, N.Y., also has a daughter, Toni, born in August 1957. Frank is now working for Sperry Gyroscope as an assistant engineer in the countermeasures system engineering department. Hank Valcour, in the Navy in Bremerton, Wash., wrote early in the summer informing me that a new Valcour was due sometime in July. However, no further details have arrived at this point.

Many people are still plugging away in the academic field. Joe Goodwill and Carl Slenk, for example, have both entered Harvard Business School this fall. At the other end of the academic procession, James Wilson received a master's degree in mechanical engineering from the University of Rochester this June.

Our Boston correspondent, Jack Saloma, is now off in England on a Fulbright scholarship, studying at the London School of Economics. Jack's regular and informative missives will be missed as a source of information for this column. However, Fred Culick, who can be found at M.I.T., room 80-218, has agreed to replace Jack as a Boston correspondent. — LT. BRUCE B. BREDEHOFT, AO 3067617, *Secretary*, BOX 108, 626th AC & WRON, APO 701, Seattle, Wash.; M. PHILIP BRYDEN, *Assistant Secretary*, 3684 McTavish Street, Montreal 2, Quebec, Canada.

'56-G

Roger Mason Letts has taken a leave of absence from American Cyanamid's operations analysis group to reappear on the Tech scene as a doctoral candidate in Chemical Engineering. His wife, Barbara (Wellesley'55), will teach in Cambridge. One of our Latin-American fellows, Raul Victor Pelaez has resettled in Buenos Aires, Argentina, after serving with Carbide and Carbon Chemicals as a roving salesman. Victor was the most dapper character in the Graduate House. David Spiro, who came to M.I.T. for a Ph.D. in Biology, to accompany a Harvard Medical School degree, has made his home in Lexington, Mass. Isaac Minkoff has taken up a position in Haifa, Israel. He is a metallurgist.

Leonard Rodberg has exchanged Baltimore for Pleasant Hills, Calif., as a place of work and residence. Naval engineer, Lieutenant William Norris Smoot, USN, has been sent to the aircraft carrier, USS Oriskany for duty. Laval Samson pursues civil engineering in Lachine, Canada. Two Course IV (architecture) graduates, Ralph Miller and John Schlossman, are planning and constructing in Tulsa, Okla., and Highland Park, Ill., respectively. Bill Mercer, from the School of Industrial Management, is enjoying suburban living in Wellesley, Mass. — Best wishes for the holiday season. — LT. (j.g.) CHARLES T. FREEDMAN, *Secretary*, USN, Special Weapons, Division, USS Independence, FPO, New York, N.Y.

'57

Well, an apology is due from your secretaries to those of you who waited all summer for the November Review only to find neither hide nor hair of the Class of '57 in it; it won't happen again.

Virginia Herman is off again across the seas. She left in August to teach science at the American Collegiate Institute for Girls at Izmur, Turkey, on a three-year appointment. Virginia has spent two previous summers in Europe and has taught at Sweet Briar College for the past two years. Word comes from the Phi Gamma Delta newsletter that Ricardo "Pancho" Gonzalez is in Germany these days. Juan Hermosilla, now a partner in the Alvarez Roesca Toledo construction firm in Guatemala City, recently passed through Boston, where he represented Guatemala in the National Tennis Doubles at Longwood. This match was one of five at various points in the U.S.

At the Harvard Business School down the river, master's degrees were awarded to Bill Adam, Bob Piccus, Art Schultz and Ed Schuman. Tom Horth received an M.A. at Oberlin earlier in the year. Pres Durrill is in Baton Rouge working in polymer plastics at Esso Research Labs. Loring Andrews began work last June in the radar engineering department of Sperry Gyroscope in Great Neck, Long Island. Stan Clark was promoted to first lieutenant at Aberdeen, Md., where he resides with his wife and two children. He has been working there in the process development division of the Army Chemical Center for a year and a half. The Alumni banquet at M.I.T. in June was attended by Mal Jones, Mary Roan and Ovadia Simha. At the Alumni Officers' Conference in September our Class was represented by Ed Roberts and your assistant secretary.

Pierre Cathou and Renata Egone were married at the M.I.T. Chapel on June 21. Pierre will finish his work at the Harvard Business School this year while Reny continues work on her doctorate in the Biology Department at Tech. Larry, now a lieutenant in the Air Force, is stationed at Wright-Patterson, from where he tours the country to technically evaluate Air Force contract work. He reports that Brian O'Kane and Ed Hassolmann are also at Wright-Pat. Ushers at the wedding included Les Gimpelson, now a teaching assistant in the Electrical Engineering Department; Shui Ho, who, after receiving his master's in Civil Engineering, is working for Jackson and Moreland in Boston and whose wife Kean Yue, a chemistry staff member, was matron of honor; and your assistant secretary. Don and Marty (Karpati) Norman, chief participants of the first all-'57 wedding, were also in Cambridge to see their proteges. Don has been promoted to full instructor in the Moore School of Electrical Engineering at the University of Pennsylvania since receiving his master's. However, by switching departments he will once again be an assistant instructor on his way to a doctorate in psychology. Marty is teaching organic chemistry and will receive her Ph.D. in two years. Lew and Evelyn Smith report that Lew is working for General Radio in Concord. Marshall Schachtman and Mr. and Mrs. Chet Day (all up from Bell Telephone Labs for the day) and Jim Wenskus (now working for Stromberg-Carlson in Rochester, N.Y.) were also in attendance at the annual wedding and reunion of the Atkinson (East Campus) Jolly Boys.

Also married on June 21 were Ed Roberts and Nancy Rosenthal in Brookline. After a wedding trip to Europe and Israel, Ed returned to Tech, where he is continuing studies toward his doctorate. On June 27, Dick Smallwood was married to Marjorie Hopkins. Dick is now back at M.I.T. studying for his doctorate in Electrical Engineering, after spending the summer with the Space Technology Laboratories in Los Angeles. — ALAN M. MAY, *Secretary*, 530 East 84th Street, New York 28, N.Y.; MARTIN R. FORSBERG, *Assistant Secretary*, 11 Scottsfield Road., Allston 34, Mass.

'59

Some very interesting comments have recently been received from members of the Class of '59. All have been of the same general nature and, I think, explain a recent bit of apathy on the part of classmates to report their activities. Phil Beach summed it up pretty well when he said: "I am going to be pouring out money for two years of graduate school at M.I.T., so don't hit me for funds yet!" Ah, that is the rub. Gentlemen (ladies, too), *do not* hesitate to write me because you fear that I will only use your address as a means of requesting funds. Evil men like Dick Sampson and Larry Bishoff will have the honor of doing most of the soliciting. I promise to behave. Now, write!!

Back to matters at hand. Additions to the mighty contingent attending grad school at our old stamping grounds are: Carl Barlow, Phil S. Beach, Hartley Hoskins, A. H. Libbey, Harrison Morse, Stephen Spooner, and Michael Spring.

Elsewhere: James Norris and Bill Smith will be at the University of California. Lloyd Howells is at the University of Chicago. Ernie Potter and wife are now at Columbia; old man Potter is actually trying to play intra-mural football. George Luedeke is attending Illinois Institute of Technology. Jim Schecher is at the University of Maryland. Neil Divine will be working on a fellowship at the University of Michigan. Minnesota will see Jan Northby.

Several more class members are at school in various parts of New York. Howard Fabry is at the state university in Syracuse. Sey Rubinstein is now at New York University; Rube went and got married this summer as did many members of our Class. Joe Wojtaszek is at the University of Rochester and Myer Kutz is at Rensselaer Polytechnic Institute.

Don Tyra is headed for Ohio State. Several more attending Penn are George Basch, Wayne Mock, and Joe Paulonis. Princeton has Bill Kossler and Howie Zabusky. Joe Canny and Eric Langford are

at Rutgers and Harold Klingele and Teruhisa Kuroda are both studying at Yale University.

Going out to the Midwest we have John Schindler at Purdue, E. J. Amrein at Western Michigan University, Ian Irons at Western Reserve University, and Ken Kawano and Milt Rundle at the University of Wisconsin.

In the West, Stanford will see Larry Boyd, A. J. Collias, Ed Getchell, Terry Gildea (Terry and Marilyn Miller were married this past September), Don Murray, and S. M. Samuels.

Studying in Switzerland will be C. K. Zoltani and Goin Harper. Goin was married to Anne Yost in September.

Many others in our Class were married and settled down to work over the past few months. Barry Altschul was married and is working for Douglas Aircraft in Santa Monica. Charlie Cushing and Judy Wall were married in September and will reside in Georgia where Cush works for General Electric. Bill Fitzgerald and Margaret Crowley were married and live in Stamford, Conn. Jim Brown married Dorothy Swanton and they are now living in Pasadena where Jim works for the Jet Propulsion Labs. The Pocatello Kid, Mike Hendricks, and Marilyn Nugent were married in June. (Sorry I missed the wedding, Mike.) Johnny McElroy and Dina Moonan had an October wedding and Mac will soon be heading south to pay tribute to Uncle Sam. Rich Simons was also married and he seems to have plans about working in Venezuela. How is it down there, Rich? Don Vaughan and Pat Huntington were married last June, too.

Statistics say many more of us were married these past few months, so how about letting everyone in on it. And if anyone has had a change in plans as reported, this, too, can be remedied easily.

Season's greetings to all. If anyone needs suggestions for his not to distant New Year's resolutions, I have a real good one: Write to Muh twice a year at a minimum!! Have lot's of happy ones. — ROBERT A. MUH, 8 Merrivale Road, Great Neck, N.Y.

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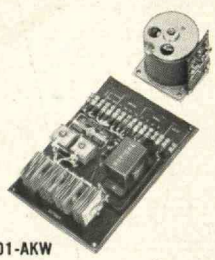

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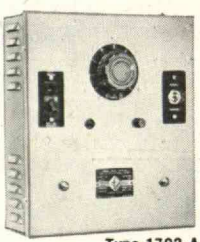

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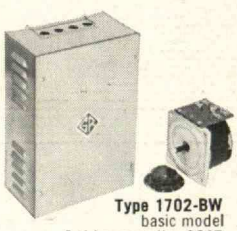

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